

Manufacturers Record

Reg. U. S. Pat. Office



SEPTEMBER 1932

25 CENTS A COPY

ECONOMY IN GOVERNMENT

The burden of taxation is resting heavily on the country and continued tremendous expense of government gives point to the universal complaint.

July, the first month of the Government's new fiscal year, showed a deficit of \$263,290,000, which is \$62,000,000 greater than it was in July a year ago. Federal receipts during the month from all sources were less than \$88,000,000, while \$351,000,000 were spent. The amount collected was \$32,000,000 less than in July last year, and the expenditures \$30,000,000 more.

When the average man considers the woeful extravagance of various governmental departments and bureaus, whose activities could be reduced or stopped entirely with advantage to the country, he is wholly unable to understand the reason for their continuance. These things cannot be emphasized too strongly nor too often.

It is obvious that taxes will not be reduced as long as government expenses increase. Groups of business men are being organized to cooperate with governmental agencies in bringing down expenses that have gone beyond reason in recent years. The public is in the mood to ask for an accounting. Articles in this issue by Admiral Byrd, chairman of the National Economy League, by B. L. Winchell, chairman of the National Association of Manufacturers' Committee on Government Competition, and by others dealing with economy in government, are indicative of the scope of the movement.

In national affairs the refusal of Congress to adopt an equitable, sane method of collecting revenue through a sales tax, applying to all interests and to all people equally according to their purchases, cannot be explained except on the ground of politics.

There is a definite movement under way to reintroduce the sales tax at the next session of Congress and leaders in both parties are pledging themselves to vote for it in place of the bill adopted. It would remove the complaint about the discriminatory features of the present bill. Public sentiment, we believe, will be found greatly in its favor. It is a tax that is easy to collect and the extent of the impost is regulated by purchases made.

A Noteworthy BRIDGE



Designing Engineers:
Harrington, Howard & Ash,
Kansas City, Mo.

at Vicksburg

for the
Vicksburg Bridge and Terminal Company

A combined railway and highway bridge built to span the "Father of Waters," is an object of special interest for its rarity alone. The bridge over the Mississippi at Vicksburg, however, commands admiration also as a piece of engineering adapted to its environment and expressive of sturdiness and usefulness. It is of cantilever type, designed to carry, at one level, a single-track line of the Illinois Central Railroad and a concrete roadway 18 feet wide. In the river spans and the East approach, the steel structure has a total length of 3,420 feet, and contains 10,500 tons of steel, all of which was furnished, fabricated and erected by



AMERICAN BRIDGE COMPANY

General Offices: Frick Building, Pittsburgh, Pa.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION



Contracting Offices: Baltimore, Boston, Chicago, Cincinnati, Cleveland, Denver, Detroit, Duluth, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City.

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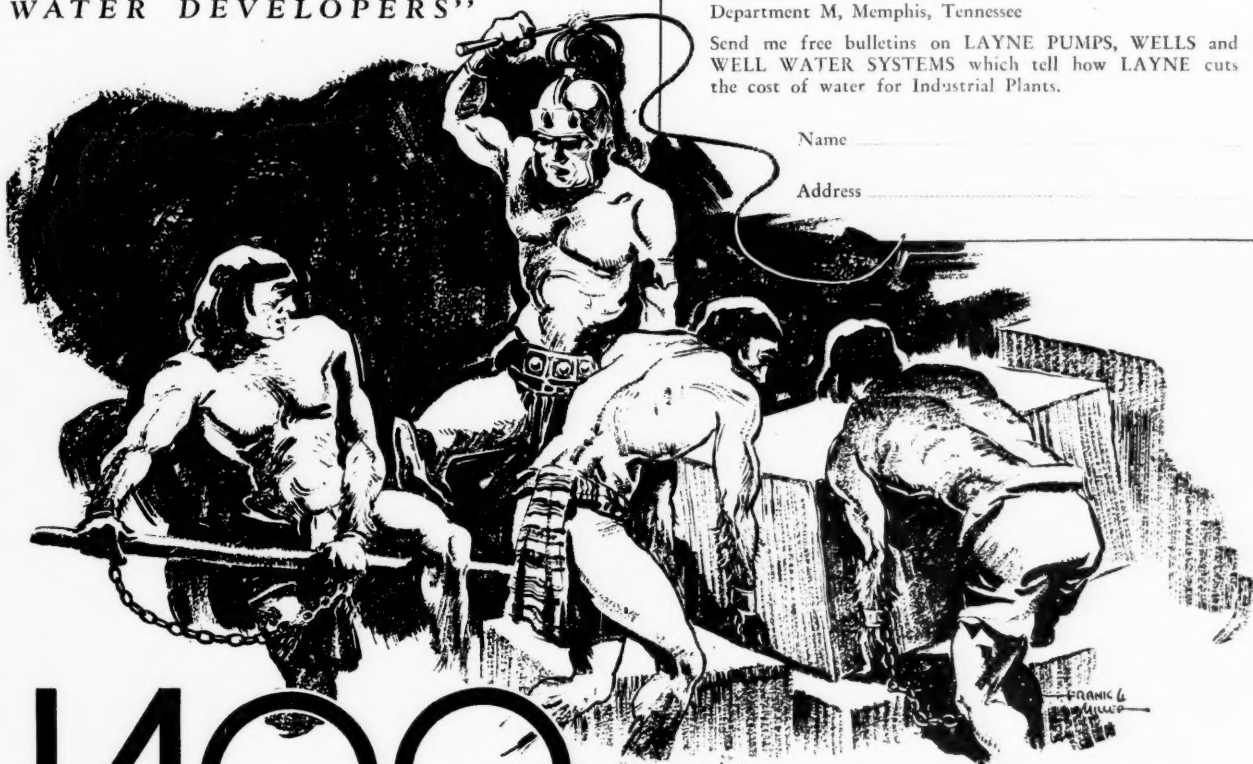
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"WORLD'S LARGEST
WATER DEVELOPERS"



LAYNE & BOWLER, INC.,
Department M, Memphis, Tennessee

Send me free bulletins on LAYNE PUMPS, WELLS and
WELL WATER SYSTEMS which tell how LAYNE cuts
the cost of water for Industrial Plants.

Name _____

Address _____

1400 Years Ago—

§ Mighty Rome flung its power across the blue Mediterranean to colonize the fertile plains of North Africa.

§ It planted seeds of cities. There were towering fortifications for safety; great amphitheaters for gory amusement; huge cisterns for water.

§ But Colonia Sabrata died with the Empire. Imperturbable Arabs and Kairoun—third sacred city of the Mohammedans—swallowed up the vestiges of Rome.

§ The slave-built cisterns endured.

§ In certain seasons, Allah sent the rains. That filled the cisterns. And Kairoun had water to drink.

§ If the water stagnated and turned green with scum; if every year many who drank it, fevered and died—well, that was Allah's will, so there was nothing to be done about it.

§ But, at the direction of the French government, Layne hydrological experts went into Kairoun.

§ They sank Layne wells and installed Layne pumps. Today, no city in all Africa can boast a more modern or finer water system than Kairoun.

§ Tens of thousands of gallons of fresh, clean, pure water pour into modern reservoirs every hour.

§ And another notable achievement has been written into the records of the "world's largest water developers."



FREE Complete information on Layne
Pumps, Wells and Well Water Sys-
tems will be sent on request. Use the coupon or
letter.

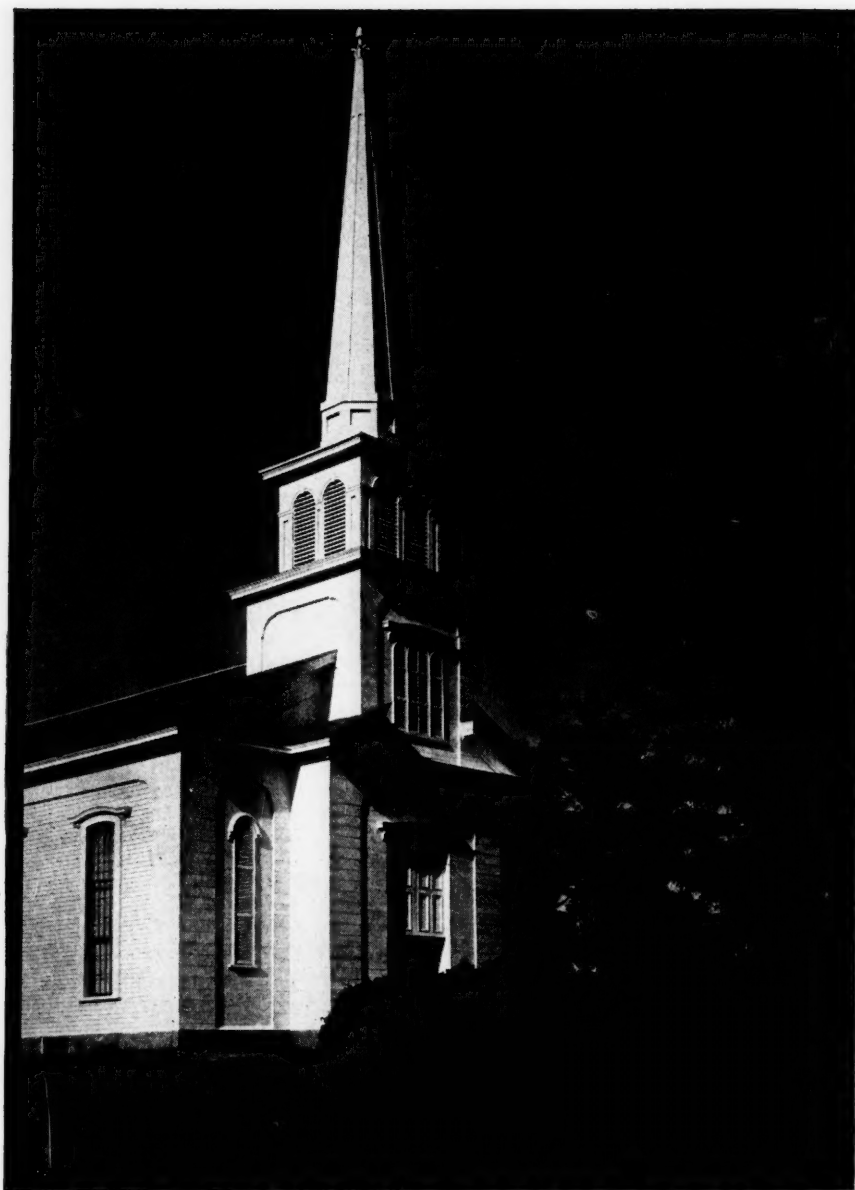
LAYNE PUMPS & WELL WATER SYSTEMS

LAYNE & BOWLER, INC.

MEMPHIS, TENNESSEE



Windows of *Enduring Beauty*



WINDOWS glazed with Pennvern Glass are beautiful windows. To the exterior, of the finished house they add charm and attractiveness by their mirror-like, reflective brightness. And their clear transparency invites the loveliness of surrounding scenes into the interior of the home.

The explanation of the excellence of Pennvern Window Glass lies in the special process by which it is manufactured. It is born flat and kept flat throughout its making—jealously protected always against contact with any substance which might mar its brilliance or its clearness.

That is why Pennvern is so transparent and free from defects,

why it is able to give such life-like clearness of vision, and to bring outside beauties into the home in such fine detail and natural colors. And that is why Pennvern's surfaces—both of them—are so bright and lustrous and beautiful.

Pennvern Windows are not only more beautiful. Their beauty lasts longer, too. Why? Because the surfaces of the glass are so dense in structure and so smooth that they resist wear and abrasion unusually well.

When you have seen Pennvern, we believe you will agree that it is

the nearest approach yet made in the sheet glass field to the polished beauty and perfection of plate glass.

Pennvern is available in single or double strength, and in thicknesses of $\frac{3}{16}$ " and $\frac{7}{32}$ ", at the warehouses of the Pittsburgh Plate Glass Company in all principal cities, through progressive glass jobbers, and through leading sash and door manufacturers. Write today for samples, and for our instructive Pennvern booklet, which contains a vivid account, in words and pictures, of the Pennvern manufacturing process. Address Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pa.

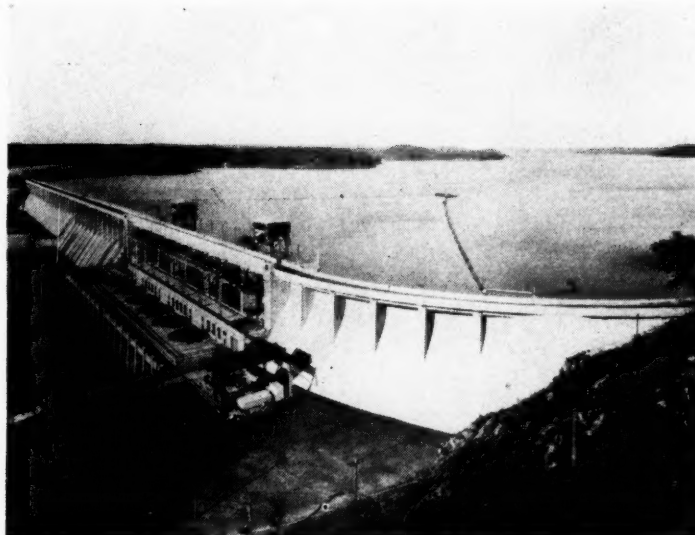
**Pennvern
Window Glass**



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1932**

Vol. CI No. 32



Osage Power Development in the Ozarks

MANUFACTURERS RECORD

Devoted to the Upbuilding of the
Nation Through the Development
of the South and Southwest as the
Nation's Greatest Material Asset

Published Monthly

by the

**MANUFACTURERS RECORD
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Frank Gould, President

Main Office: Manufacturers Record Building, Commerce
and Water Streets, Baltimore Md.

Branch Offices:

New York—11 W. 42nd St.

Chicago—10 S. LaSalle St., Room 608

Subscription Rate: \$2.00 a year (in advance). Single
copies, 25c; back numbers, one to six months, 50c each;
over six months, \$1.00. Combination rate for Manufac-
turers Record and Daily Construction Bulletin, \$10.00
a year.

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address to avoid delay in service.

> <

**PUBLISHERS DAILY CONSTRUCTION BULLETIN AND
BLUE BOOK OF SOUTHERN PROGRESS**

Member, A.B.C.

SEPTEMBER NINETEEN THIRTY-TWO

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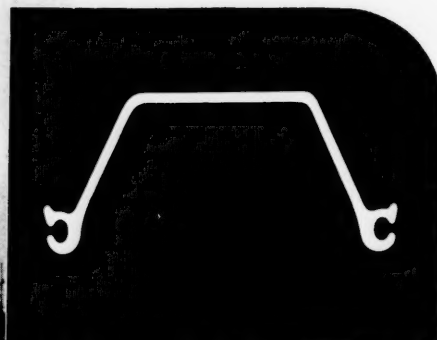
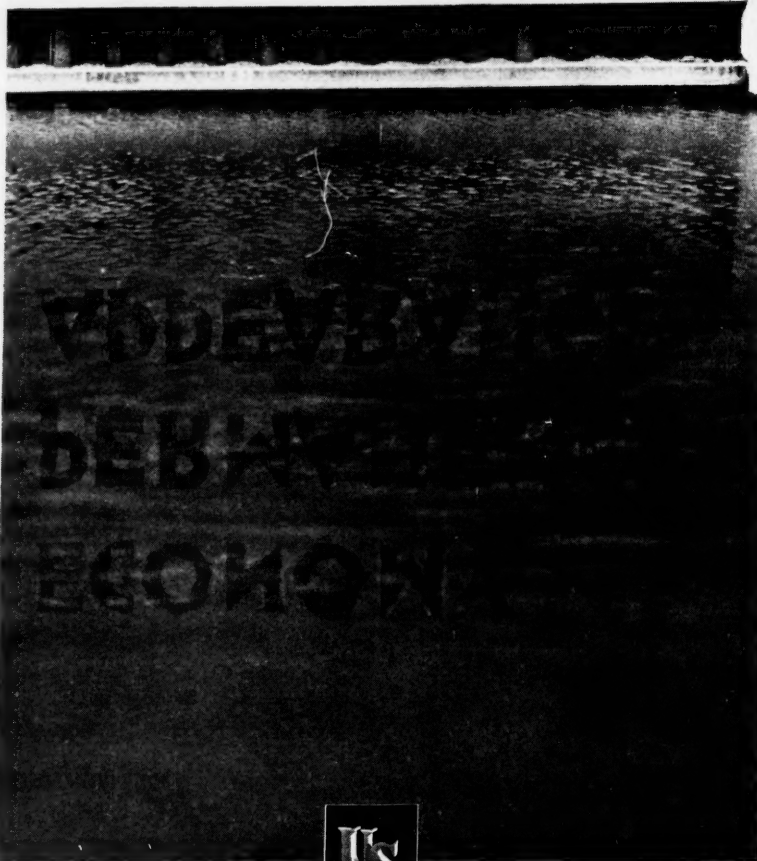
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ECONOMY PERMANENCE APPEARANCE



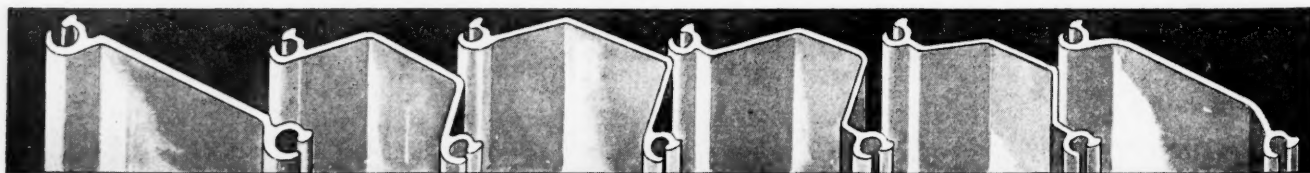
THE construction of locks in New Basin Canal and Bayou St. John at New Orleans presents an interesting use of Steel Sheet Piling. Carnegie Arch Web Section M-110 provided not only an extremely economical lock wall, but one which creditably fulfills the requirements of permanence and appearance.

The Board of Levee Commissioners, Orleans Levee District, of which A. L. Shushan is President and John Shorer, Chief Engineer, were the engineers and designers. John Riess was the general contractor.

Carnegie engineers welcome the opportunity to help you with your problems.

Carnegie Steel Company • Pittsburgh
Subsidiary of United States Steel Corporation

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CARNEGIE STEEL SHEET PILING

MANUFACTURERS RECORD FOR



Roof Timbers of Large Paper Mill Treated with Zinc Chloride to Prevent Premature Replacement, Resulting in Minimum Maintenance Cost. Timbers Painted White After Installing Same as if Untreated Timber Had Been Used.

Guard Against Rot and Insects

BY TREATING YOUR TIMBERS WITH

GRASELLI ZINC CHLORIDE

CONDITIONS in textile mills, paper and pulp mills, refrigeration plants, and many other establishments are known to be conducive to the early rotting of wood. And wood decay is both troublesome and expensive. • Zinc Chloride treated wood is rot proof, fire retarding and termite resisting. It is clean, odorless and paintable. • Timbers treated with Zinc Chloride have from three to ten times greater life than untreated timbers, thereby eliminating the need of costly replacements. • Among the many uses for which Zinc Chloride treated

wood is today preferred are: Mill Timbers, Mine Timbers, Structural Timbers, Stadium Seats, Roofing, Flooring, Stringers, Nailing Strips, Roller Coasters, Playground Equipment, Car Lumber, Bill Boards, Sign Posts, Fences and Fence Posts, Bridges and Trestles, Highway Posts, Guard Rails, Piling. • • • Commercial wood preserving plants are available at convenient locations for treating wood under pressure — assuring the deepest possible penetration of structural timbers. Write us for their names and addresses.

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FIRE - RETARDING



TERMITE - RESISTANT

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GRASELLI GRADE
A Standard Held High for 93 Years

SEPTEMBER NINETEEN THIRTY-TWO

● Send for free, illustrated book explaining valuable economies in wood preservation and maintenance.



THE GRASELLI CHEMICAL COMPANY
629 Euclid Ave., Cleveland, Ohio.

Please send me, without cost or obligation, your booklet, "Looking Ahead Twenty Years in Wood Utility."

Name _____

Address _____

City _____

State _____

This country needs enough Water Works Construction to give WORK to *a million men*

Experts calculate that to produce and lay 100 tons of cast iron pipe requires a full day's work by 740 men. According to an unemployment relief plan sponsored by the American Water Works Association, the tonnage of cast iron pipe required for necessary water works improvements such as extensions, replacements and reinforcing mains is very large. To produce and lay the estimated tonnage would give a million men work for nearly a month. For, besides local labor, seven industries are primarily involved in the production, laying and transportation of cast iron pipe.

* * *

The Emergency Relief and Reconstruction Act authorizes loans for self-supporting public construction such as water works improvements. Municipal water works departments are more than self-supporting; they are almost invariably profitable operations. Improvement costs can be liquidated out of the departments' earnings without adding to the tax burden.

* * *

It is therefore to the advantage of any community to reduce the expense of direct unem-

ployment relief, and to stimulate business revival, by constructing needed water works improvements now. To do so in time to affect the relief problem this winter calls for prompt action. Funds must be provided for, in some cases, through the Reconstruction Finance Corporation; bids advertised; materials produced and delivered — and all this will mean a race against winter breadlines.

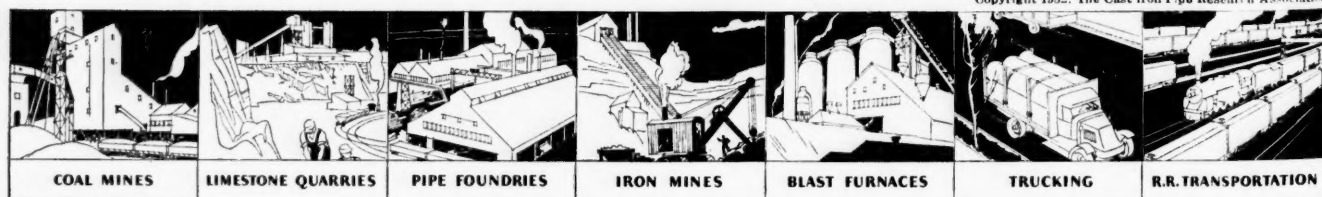
* * *

Cast iron water mains are the most economical because they last longest. Their useful life is more than a century. They serve long after the bonds issued for their payment are retired and forgotten. Their long life is due to effective resistance to rust. Cast iron is the one ferrous metal for water and gas mains, and for sewer construction, that will not disintegrate from rust. This characteristic makes cast iron pipe the most practicable for underground mains since rust will not destroy it. For further information regarding cast iron pipe for water and gas mains, and for sewer construction, write to The Cast Iron Pipe Research Association, Thos. F. Wolfe, Research Engineer, 122 S. Michigan Avenue, Chicago, Ill.



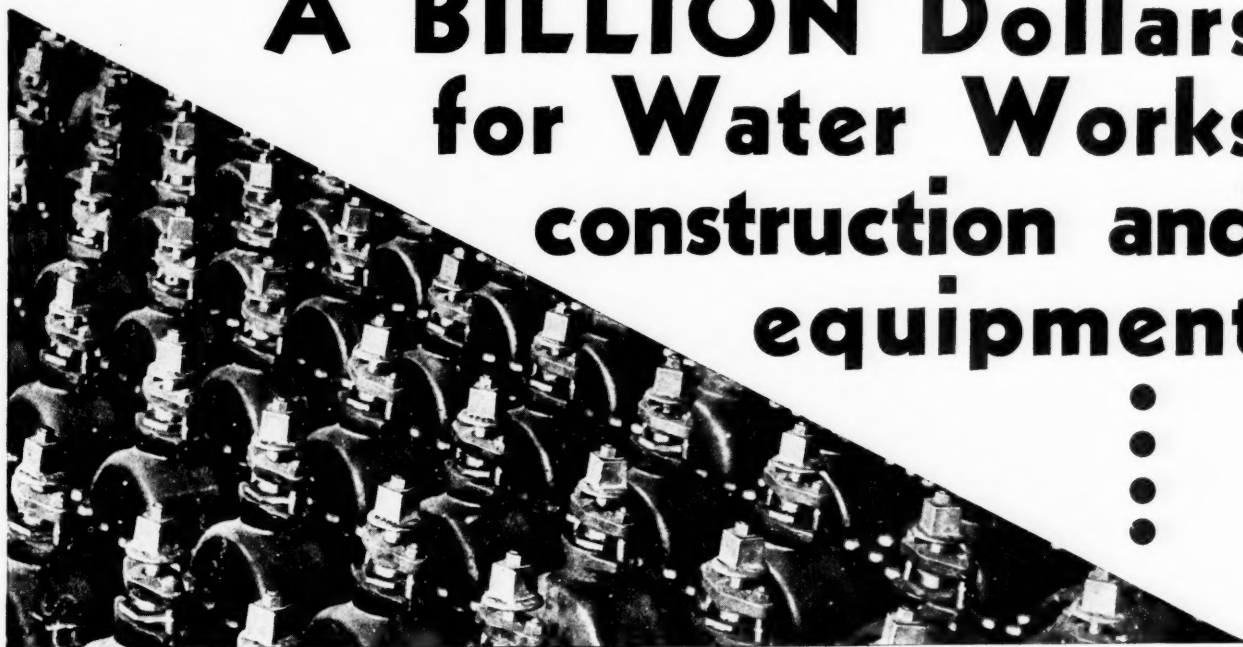
Look for the "Q-check" symbol as shown above. It is the registered trademark of The Cast Iron Pipe Research Association.

*Besides local labor, these seven industries are involved
in the production, transportation and laying of CAST IRON PIPE*



Copyright 1932. The Cast Iron Pipe Research Association

A BILLION Dollars for Water Works construction and equipment



"Ten million men are asking for work—work, among other things, in building water supply facilities of which a half-billion dollars' worth is waiting to be undertaken," says the *Engineering News-Record*.

In voting this huge sum Congress specifies that it shall be loaned to "self-liquidating" public works. The lion's share of this huge sum should go for water works improvements, for as pointed out in a recent editorial of *Water Works Engineering*, "water works improvements are unique among municipal improvements in that they pay for themselves."

Here are the facts that urge your immediate consideration of this unusual opportunity to finance needed construction and extensions:

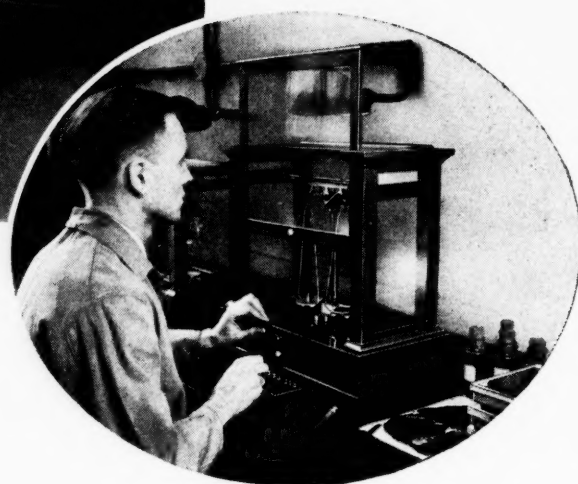
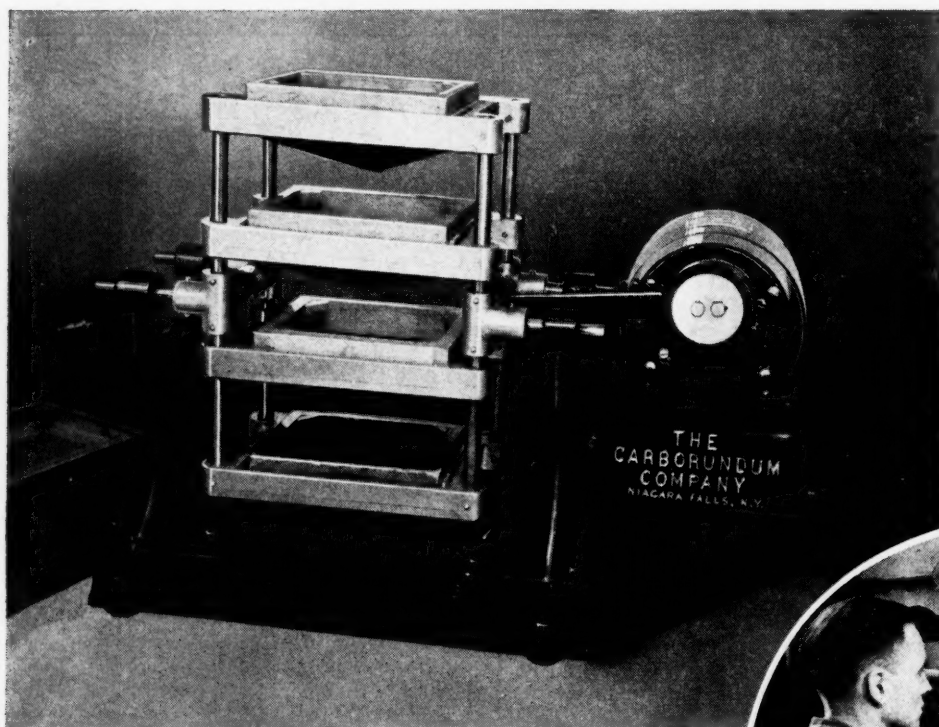
1. The earnings from this investment are certain to create a sinking fund sufficient to take care of interest and amortize the bonds. If this is done, *the bonds will not be charged against the borrowing capacity of your city.*
2. The effect of the letting of this work now in relieving unemployment right among your own citizens and customers. *90% goes directly to labor.*
3. The *substantial savings* afforded under present low price of labor, pipe and every necessary item of equipment.

Here is your opportunity to do a big thing for the city you serve, your company, and in securing substantial annual insurance savings for your citizens. The *Columbian* organization is at your service to enable you to make the most of this very unusual opportunity.



Sales Offices

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Atlanta
Pittsburgh
Memphis
Dallas
Charlotte
Albuquerque
New Orleans



ALOXITE brand "TP" Reg. U. S. Pat. Off. has Laboratory Assurance of Uniformity of Grain Size

HUNDREDS of analyses are made in Carborundum laboratories in that important matter of screen control—in that important manufacturing detail of assuring uniformity of grain size in every shipment of Aloxite Brand "TP" Polishing Grain.

Illustrated is the specially designed laboratory test sifter (patent applied for). The daily use of such equipment makes possible these close analyses.

And because of this measuring method—this painstaking scientific screen control—each shipment of a given grit size of "TP" grain is a "mirror image" of another.

Coarse grits that scratch—fines that are less efficient—are conspicuously absent.

The result is that "TP"—the polishing grain with the Surface Tenacity—is making unprecedented records for production—beauty, fineness and uniformity of finish in many a polishing room.

THE CARBORUNDUM COMPANY

REG. U. S. PAT. OFF.

—NIAGARA FALLS, N. Y.—

CANADIAN CARBORUNDUM CO., LTD., NIAGARA FALLS, ONT.

Sales Offices and Warehouses in New York, Chicago, Boston, Philadelphia, Cleveland, Detroit, Cincinnati, Pittsburgh, Milwaukee, Grand Rapids, Toronto, Ont. The Carborundum Co., Ltd., Manchester, England Deutsche Carborundum Werke, Reisholz bei Dusseldorf, Germany

(CARBORUNDUM AND ALOXITE ARE REGISTERED TRADE MARKS OF THE CARBORUNDUM COMPANY)

SEND FOR COPY OF THE ALOXITE BRAND "TP" POLISHING MANUAL—SENT FREE

How to stop little leaks *that Wear Away Profits*

DOLLARS spent for material handling must be charged to "overhead." Every dime wasted through slothful handling of raw or fabricated materials wears down profits, and sometimes destroys them. In thousands of plants, investing a few hundred dollars would make it possible to stop these hour to hour, day to day leaks in handling costs, that look small by the hour—but loom big by the year.

Many managers have benefited by our help in searching out and stopping seemingly unimportant handling inefficiencies. Let us assist you. We can determine whether working time is employed as profitably as it would be with modern handling machinery. Whether your production equipment takes "time out" waiting for supplies. Whether floor space is being used to best advantage.

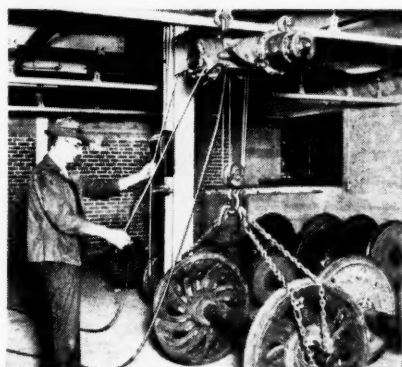
Quite often it is found that a small Shepard Electric Hoist, at a cost of a few hundred dollars, will turn little leaks into continuous daily savings that total a substantial amount at the end of the year.

You might equal these

1—"We avoided installation of an expensive elevator, and more than doubled our handling capacity by using a Shepard Hoist."

2—"The Shepard Hoist which serves our electric furnaces has tripled the speed of the work. Savings will pay for it in 2 years."

3—"A Shepard Hoist saved a good



Floor Control Electric Hoist



Cage Control Mono-rail Hoist



Only a Shepard has these features

1. *Balanced Drive, at two points diametrically opposite.*
2. *Perfect alignment, maintained by all moving parts rotating around a common axis.*
3. *Automatic Oil Bath Lubrication.*
4. *Controlled by rope, push button or outrig for every hoist.*
5. *Precision variable speed control for both A. C. and D. C.*
6. *Variety of speeds, types, lifts and capacity precisely suited to any specific service.*

part of the cost of a freight elevator, and its operating cost is lower."

4—"Shepard Hoists in our foundry have paid for themselves by the savings effected. Castings are now picked up 4 at a time, instead of one."

5—"Only a third as much work is now required to charge our furnaces. Our Shepard Hoist does the job more quickly, too. A lot of valuable time is saved."

6—"The Shepard serves 6 grinders ...at a saving of \$60 a week."

A Survey of Your Plant

—may uncover possibilities for comparable economies through properly planned load handling. We would be happy to have one of our engineers assist you with his intimate knowledge of innumerable cost-cutting applications. At your request we will have our nearest office send him to see you. It places you under no obligation.

Shepard Niles material handling equipment includes Electric Hoists, Mono-rail and Transfer Cranes, and Cupola Chargers. The range of sizes and types is incomparably complete, and our own lower production costs are reflected in our revised prices.

SHEPARD NILES CRANE & HOIST CORP.
441 Schuyler Ave., Montour Falls, N. Y.
Works: Montour Falls, N. Y., Philadelphia, Pa.
Branch Offices in Principal Cities.



SHEPARD

ELECTRIC CRANES AND HOISTS

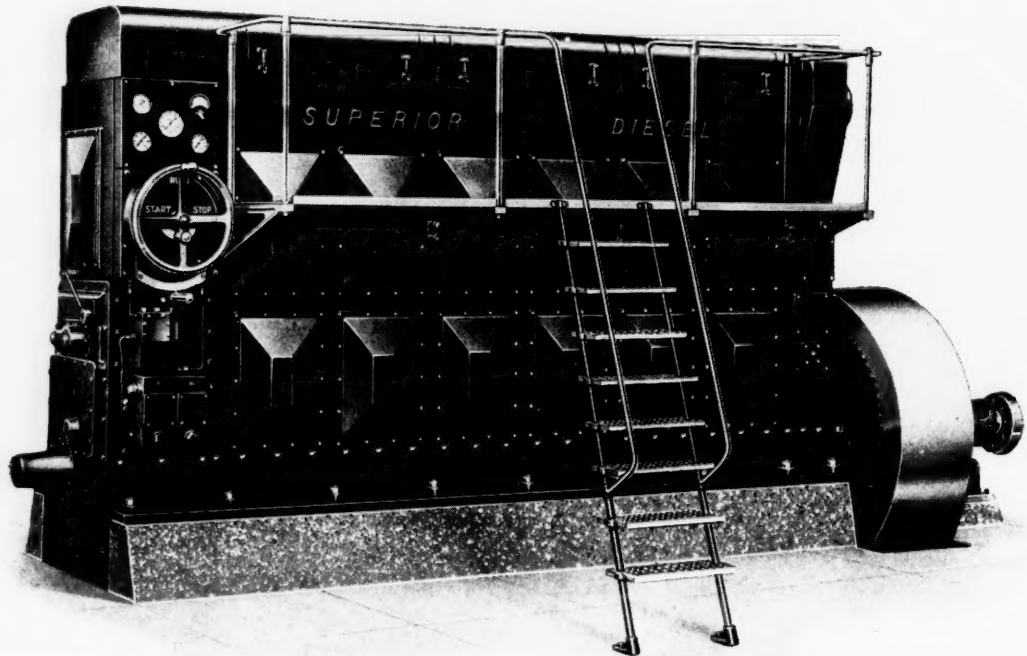
SEPTEMBER NINETEEN THIRTY-TWO

As your first move, why not write for this interesting book of profitable experiences with Shepard Electric Hoists?



Name _____
Company _____
Address _____

SUPERIOR DIESELS *for* INDUSTRIAL POWER



Bulletin No. 125-H
Free upon request.

Superior Diesels, incorporating modern design, rugged construction, low operation and maintenance expense, and faithful performance, have demonstrated their ability to meet the diversified power requirements of American industry efficiently and economically.

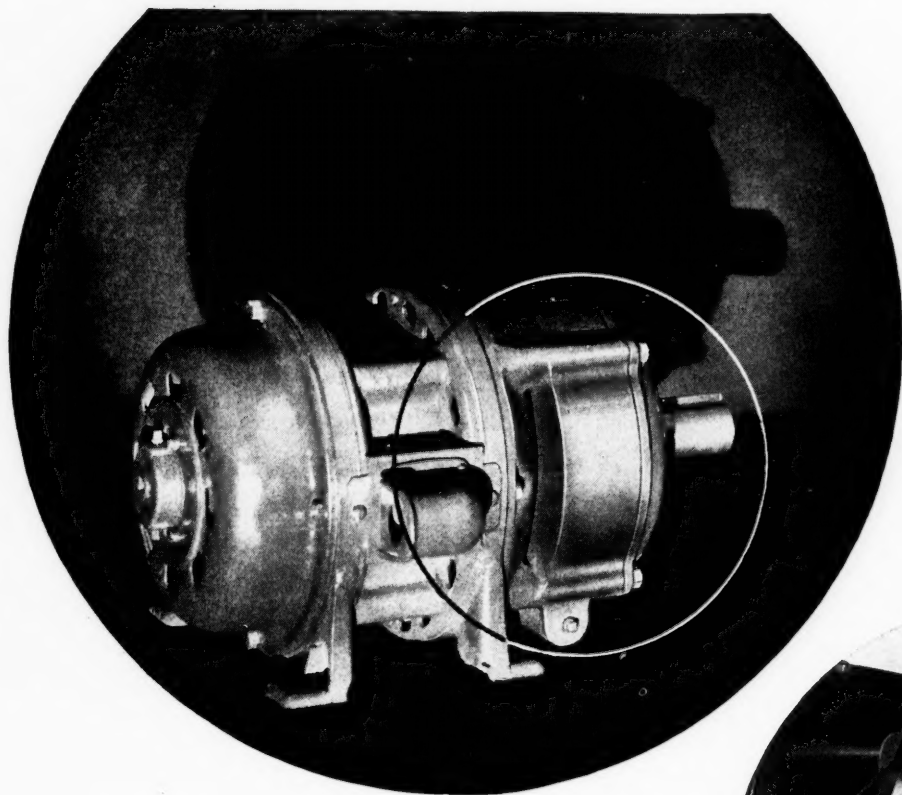
Sizes and models for every power need—portable, semi-portable and stationary.

SUPERIOR ENGINE COMPANY
SPRINGFIELD, OHIO

SUPERIOR
DIESEL · STATIONARY · ENGINES

G-E GEAR-MOTORS

EFFICIENT -- COMPACT -- ECONOMICAL



THE G-E GEAR-MOTOR is a combination of a motor and a speed reducer, built into a single, compact unit to deliver the desired low speed, direct at the drive shaft. It is only slightly larger than an ordinary motor and is easy to install.

The GEAR-MOTOR combines the economy of a standard, normal-speed, general-purpose motor and the efficient speed reduction of internal helical gearing running in oil. The GEAR-MOTOR delivers the full rated horsepower of the motor at the output shaft.

Information on this complete line of GEAR-MOTORS can be obtained from the nearest G-E sales office or G-E Motor Dealer, or from General Electric Company, Schenectady, New York.



STANDARD RATINGS

600 to 13 Rpm.

Polyphase, 3/4 to 75 hp.

Single-phase, 3/4 to 5 hp.

Direct Current, 3/4 to 7 1/2 hp.

Other speeds and horsepower ratings can be furnished on request. Mechanical modifications are available, such as flange mounting, vertical motors, etc.

Speed adjustment can be obtained by selecting a motor with the necessary electrical characteristics.

201-229

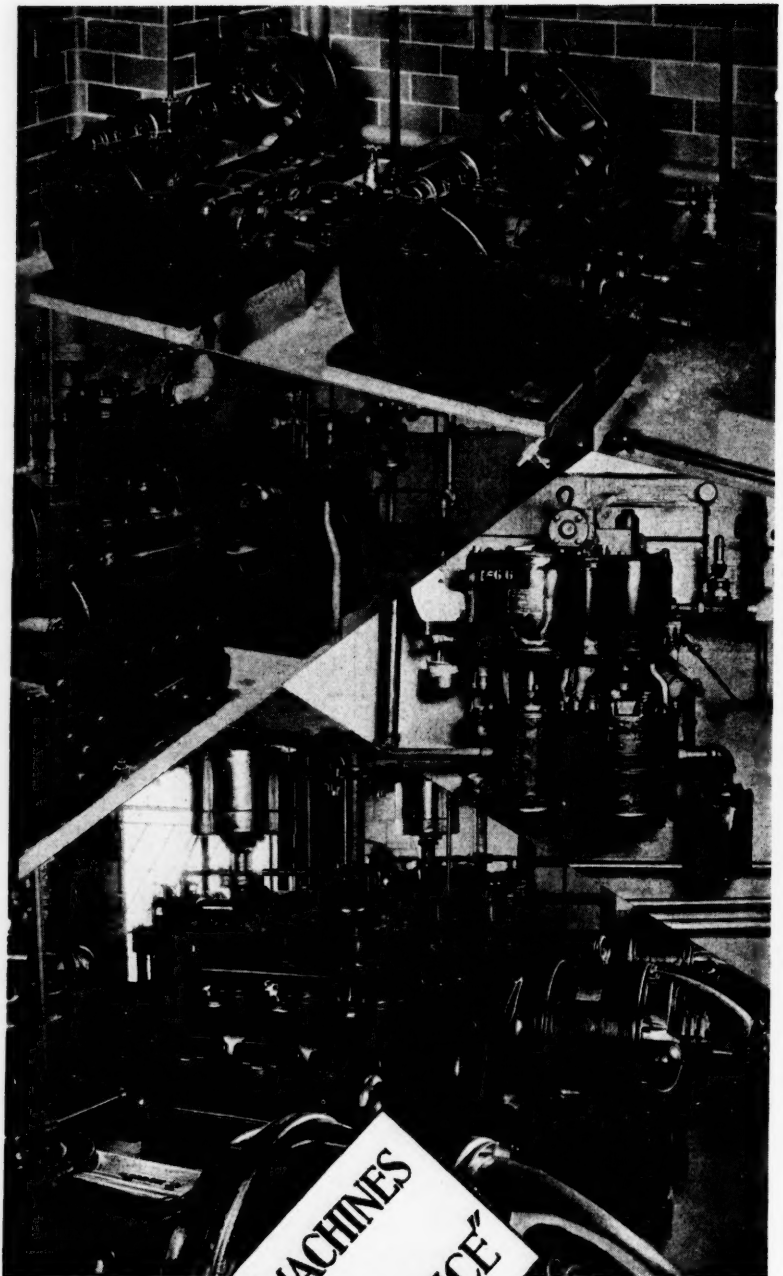
GENERAL ELECTRIC

VARIETY IN UNIFORMITY

Westinghouse Air Compressors are available in many types and sizes—ranging from $2\frac{1}{2}$ to 300 cu. ft. displacement—for every conceivable pneumatic requirement in any industrial plant . . . While there is diversity in form and purpose there is uniformity in quality and performance . . . These compressors possess unique design features and are well built. They are noted for reliable, economical operation, and for unusually long life.

WESTINGHOUSE TRACTION BRAKE CO.

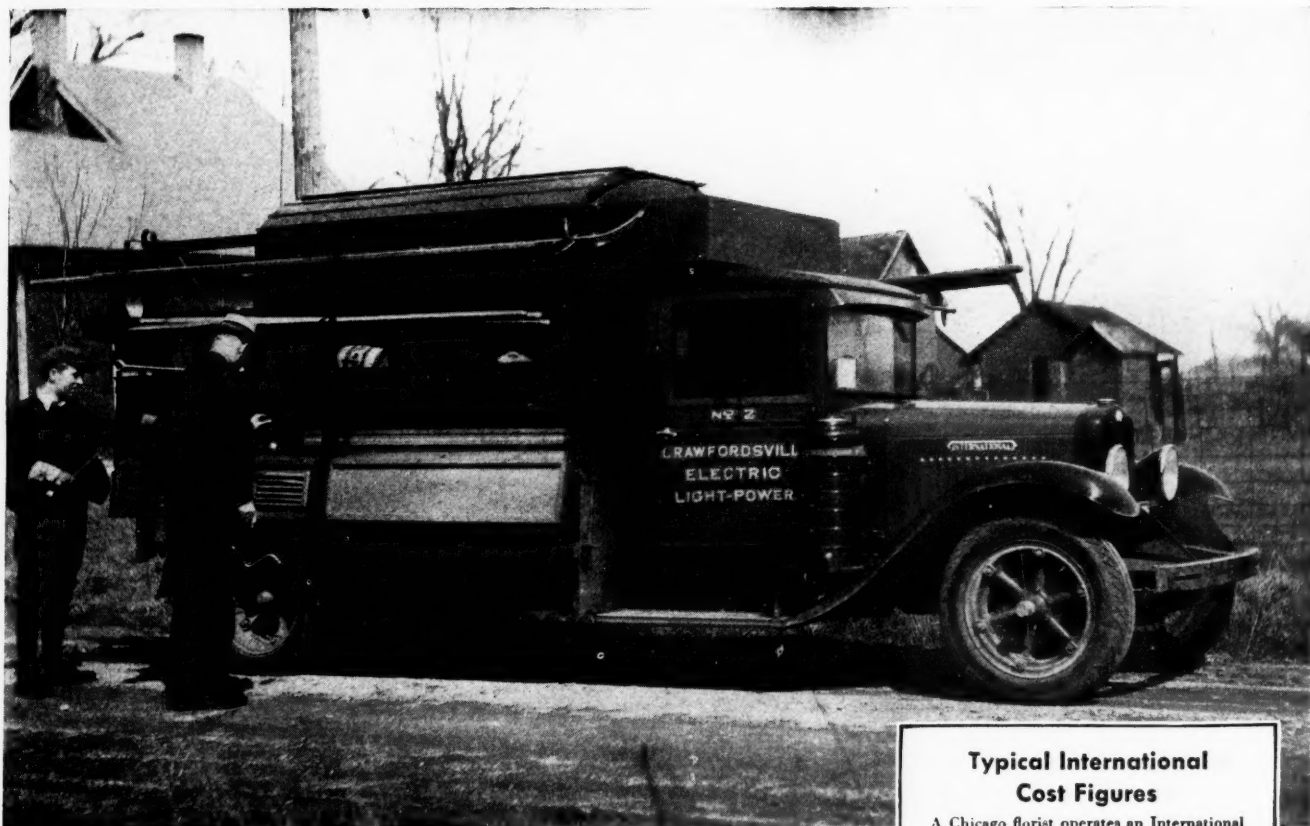
Industrial Division
PITTSBURGH, PENNA.



"QUALITY MACHINES
FOR
QUALITY SERVICE"

WESTINGHOUSE AIR COMPRESSORS

Proved Economy Is Behind International Popularity



This line and maintenance truck owned by the Crawfordsville, Ind., Electric Light and Power Co., is an International Model A-2, 1 1/2-ton truck. Note the covered body and compartments for tools and equipment.

IN these times, with proved economy the vital factor in truck purchase, Internationals have set a remarkable record. Look carefully at the low cost figures at the right. There you have the principal reason why, despite general business conditions during 1931, International almost equaled its record for the year before . . . though total new-truck registrations fell off 22%; *and it is also the reason why International sales so far this year are well ahead of last!*

Do not make any truck investment until you have seen what International has to offer you . . . models for every possible requirement, in capacities from 3/4-ton to 7 1/2-ton, and at chassis prices as low as \$615.

Let the nearest of 188 International branches in the United States and Canada, or an International Truck dealer, demonstrate any model for you, and tell you how you can reap the benefits of International trucking economy. And remember that the largest Company-owned truck service organization in the world stands ready to help your International give you the *full value* that is built into it.

INTERNATIONAL HARVESTER COMPANY

606 So. Michigan Ave.

OF AMERICA
(Incorporated)

Chicago, Illinois

Typical International Cost Figures

A Chicago florist operates an International for three years for less than 5 cents a mile, all costs included.

A baker operates hundreds of Internationals at average cost of 5 1/4 cents a mile.

Another baker operates a big fleet at average cost of 5 1/2 cents a mile.

A laundry operates a 3/4-ton International thirteen months at cost of 3.4 cents a mile.

A long-distance hauler operates a 2-ton International twenty months at cost of 6.2 cents a mile.

A farmer operates a 1 1/2-ton International two years at cost of 4.4 cents a mile.

A bottler operates a 1 1/2-ton International 34,000 miles at less than 3 cents a mile.

Another bottler operates a 6-cylinder, 2-ton International for under 6 1/2 cents a mile.

A transfer company operates a 6-cylinder, 1 1/2-ton International twelve months at cost of 4 1/2 cents a mile.

An oil company operates a 3-ton International with tank body 33,000 miles at a cost of 6.9 cents a mile.

Names and complete facts on these and other records will be sent on request.

Ask for demonstration of the New 1 1/2-ton 4-speed Model A-2. Now reduced to

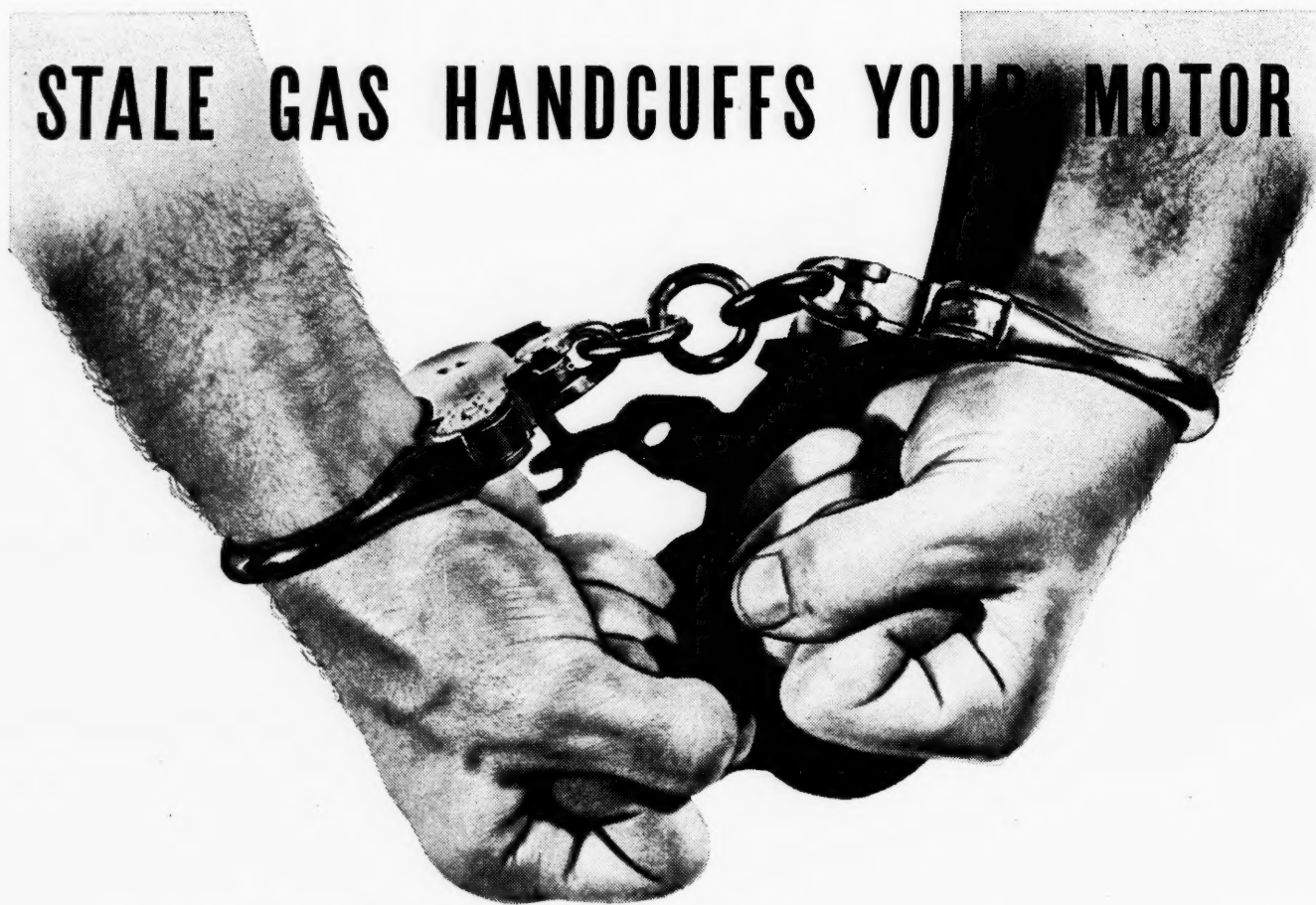
\$615

for the 136-inch wheelbase chassis, f. o. b. factory (taxes extra). Other sizes range from 3/4-ton to 7 1/2-ton.



INTERNATIONAL TRUCKS

STALE GAS HANDCUFFS YOUR MOTOR



ONLY *fresh* GAS UNLEASHES FULL POWER

Staleness steals the power of gasoline. Little by little, the lighter parts—important “easy starting” elements—evaporate! Also a physical change takes place—so that, *as staleness increases, power decreases!*

And the staler the gas, the more it knocks—and the *stickier* it is—more apt to foul a motor.

The whole petroleum industry has long sought a way to stop

gasoline deterioration. Now Gulf announces a system that assures every motorist of getting FRESH-MADE gasoline! How?

By making the best possible gasoline and *refining out* the elements (unsaturated hydrocarbons) that cause fast deterioration.

And by rushing this FRESH gas to you like some perishable food!

SPEED! The whole Gulf organization is geared to it. Huge

Gulf refineries in many sections of the country put every Gulf filling station close to a source of FRESH gasoline. A vast fleet of tank trucks speed FRESH gas to Gulf pumps every day.

Get FULL power for your gasoline dollar. Get FRESH-MADE gas—delivered FRESH. Get Gulf exclusively—and you’ll have a motor that’s faster. A motor that’s cleaner. And quieter.

get THAT GOOD **GULF** GASOLINE—*it's fresh*

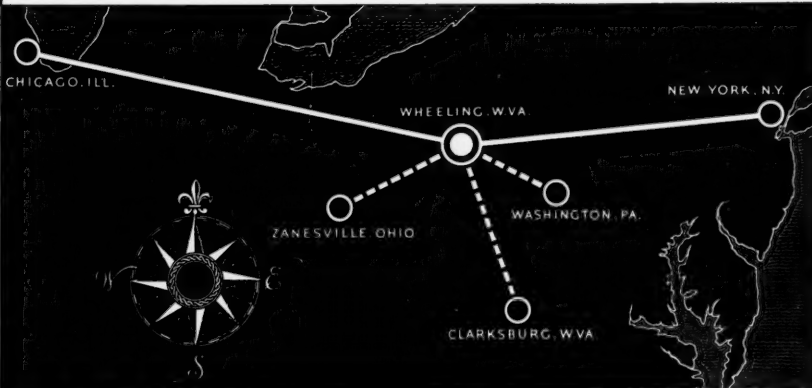


TWO WAYS TO REDUCE COSTS

Hazel-Atlas Glass Company effects many operating economies by
(1) *Long Distance* and (2) *Private Line Teletypewriter Service*



Key points are connected by Private Line Teletypewriter Service (shown by unbroken lines) and Private Line Telephone Service (broken lines).



The Vice President in Charge of Sales says: "These services speed up production by getting communications to their destination 24 hours faster."



SALES COSTS DOWN. Sales volume up. That's the story of certain companies in spite of general conditions. Bell System services are playing an important part in cutting expenses and building new business.

The Hazel-Atlas Glass Company is one of today's successful concerns. The Vice President says: "Sales costs have been noticeably reduced by reason of Teletypewriter Service. And a liberal use of Bell System services generally has been of material aid in holding up our volume of business."

The company's officials in Wheeling, W. Va., and in the district sales offices and plants from coast to coast keep in close touch with each other by *Long Distance*. The salesmen in the field also maintain frequent contact with customers by this same method—making appointments, quoting prices, discussing designs, arranging deliveries.

Private Line Teletypewriter Service—typing by wire—connects the headquarters and plants in Wheeling with sales offices in New York and Chicago. Messages, reports, and inquiries, typed in one office, are simultaneously received in identical form at the others.

Thus, the company saves many hours in all departments each day through use of the services. Operating and distribution costs are cut. The productive power of the entire organization is increased.

Bell System services are helping many companies to eliminate profit-eating operations. Best results are obtained from the *planned* use of telephone facilities. The Telephone Plan of Market Coverage can be adapted to the particular requirements of any company. Have a telephone representative prepare a money-saving adaptation of this plan for *your* company. You incur no obligation.



JUST CALL YOUR BELL



TELEPHONE BUSINESS OFFICE

MARKS that Enable You to Identify **SHEET STEEL** QUALITY *at a Glance*



The Brand—
AMERICAN

is a quick and easy way to recognize and remember the fine quality to be found in these carefully manufactured and high grade Black and Galvanized Sheets.

Only by making certain that the Sheets you purchase are AMERICAN, do you insure the excellence that may be expected from products that are made right in every detail by skilled and experienced craftsmen. You can always identify true quality by the well known AMERICAN brands.

Send for latest
Booklets and Weight Cards



American Sheet and Tin Plate Company
GENERAL OFFICES: Frick Building, PITTSBURGH, PA.



SUBSIDIARY OF UNITED STATES STEEL CORPORATION

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL & WIRE COMPANY
CARNEGIE STEEL COMPANY

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
ILLINOIS STEEL COMPANY
NATIONAL TUBE COMPANY
FEDERAL SHIPBUILDING AND DRY DOCK COMPANY

OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R.R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, San Francisco, Calif.

Export Distributors—United States Steel Products Company, New York, N. Y.

• Manufacturers Record •

SOUTH LEADS THE WAY

A MIDSUMMER rise in security and commodity prices, at a time of customary business dullness, has been heartening to the country. It has developed a feeling of optimism and confidence that has been lacking for a long time. It has been particularly felt in the South because this section is a heavy producer of staple commodities, and cotton prices, following the production forecast of between 10,000,000 and 11,000,000 bales, have risen to a point that assures a profit for many cotton holders and growers. There has come a marked increase in activity in cotton manufacturing, which is another evidence that people buy on a rising market. In all parts of the Southern states mills have been stepping up their operations and increasing employment.

Since last May the increase in cotton prices has added more than \$200,000,000 to the South's purchasing power.

But while cotton is always the spectacular performer and commands most attention both in the South and elsewhere as the principal Southern crop, and because the South produces about 80 per cent of the country's cotton goods through its great textile industry, other crops and other industries which amount to more in the aggregate do not receive the same notice. As a matter of fact, cotton manufactures, valued at \$965,000,000 in 1929, represented less than 10 per cent of the total value of manufactures in the South.

The output of Southern forest and woodworking industries, with an annual value in excess of \$1,000,000,000 in normal years, is more than the value of products of Southern textile mills. Petroleum refining is a \$900,000,000 industry in the South. Its annual production of cigars and cigarettes is over \$700,000,000, while the output of iron and steel, foundry and metal working plants is more than \$685,000,000, to mention some of the major manufacturing lines in the Southern states.

The South supplies one-third of the country's minerals, including oil and gas classified under that heading. It is fast developing a chemical industry, with pulp and paper making in addition that will enable it to become the dominant producing section of the country, as its cotton mills now dominate the textile industry of the United States.

There was established here this year the first aluminum plate mill in the world, and with the growing interest in light weight metals for construction and equipment, it is evident that Southern bauxite deposits will be in increasing demand.

There has been launched a tung oil industry that will make us independent of foreign supply, and with paper making from Southern pines, this country will, in time, be independent of foreign pulp and paper.

Among 200 industrial classifications, it is well to remember that the South is a dominant producer of many products and in addition to textiles has some of the largest plants of their respective kinds in the world. This is true in such lines as the following:

Sugar machinery	Mantle and fireplace fixtures
Cast iron pipe	Hickory handles
Wood treating and preservation	Syrup canning
Tobacco products	Tin decorating
Bottle-washing machinery	Casket
Furniture	Portable electric tools
X-ray machines	Sanitary pottery
Iron fence making	Aluminum extraction and plates
Lumber	Paper pulp
Rice milling and packaging	Cigar making
Sulphuric acid	Helium
Box	Oil refining
Wagon	Trunks
Drop forged valves and fittings	Axe
	China ware.

In agriculture, the prime materials of which are becoming every day of greater importance in manufacturing through the wizardry of the chemist, the South produces a greater diversity of products than other sections of the country. While cotton is the principal crop in many sections, there are wide areas that never grow a bale of cotton. For some years the cotton crop averaged more than 40,000,000 acres but the total acreage given over to grain is far in excess of the largest cotton area ever planted in this section. Livestock, vegetable and orchard products are increasing every year in extent, and investment being placed in them. This year there is the satisfaction of having produced more food and feed for home consumption and the lowest cost cotton crop, perhaps, in Southern history. It is, therefore, hardly cause for wonder that as commodity prices have shown improvement the South has become more optimistic as it recognizes the increasing purchasing power it will have for the products of industry.

THE MISSISSIPPI FIRST

THE treaty with Canada for the proposed Great Lakes-St. Lawrence seaway will be presented for ratification at the next session of Congress. It provides for deepening that part of the St. Lawrence river which lies to the west of Montreal to its beginning at Lake Ontario, so that ocean-going vessels drawing not more than 27 feet of water may reach the harbors of the Great Lakes.

Half of the cost of the project, which would be borne by this country, will amount, according to varying estimates, from \$250,000,000 to \$500,000,000. Laying aside for the moment the possible benefits, also the serious competition that would be offered railroads already in dire distress, and eastern ports that are struggling for traffic, which would be most serious and hurtful competition, it is well to consider the gigantic work that this government has already undertaken in its river improvement program.

Recent dispatches about the devastating floods in China, with their attendant tremendous loss of life, turned the thoughts of this country to our own flood problems of the Mississippi River and its tributaries. Since the great disaster of 1927, when 30,000 square miles of the Mississippi basin were under water, causing the death of several hundred people and driving 600,000 more from their homes, with a destruction of property valued at \$270,000,000, flood control work under the government's program, has gone ahead to the point where it is about 50 per cent completed.

In the intervening years since it started, extremely fortunate conditions for rapid construction of levees and protective work have prevailed. It is not reasonable to expect that such favorable conditions will continue, nor is it at all certain that the plan adopted will form complete protection when completed. Floods occur in some part of the Mississippi basin every spring, while in recent times great floods occur at intervals of about five years. By reason of this periodic threat to hundreds of thousands of lives and hundreds of millions of property, it is indisputable that this country should vigorously prosecute the work of protecting citizens and property throughout this area and carry to completion as rapidly as possible its flood control plans. Attention should not be diverted from the importance of this by reason of the consideration of the St. Lawrence project, nor for any other reason.

As to the advisability of undertaking at this time such a tremendous expenditure as the St. Lawrence project, there well may be a difference of opinion. Objections on economic grounds that are developing in various quarters against it raise doubt about the wisdom of an outlay of such magnitude at present. Aside from this, while admittedly that part of the Middle West which borders the Great Lakes and particularly the interior of Canada will reap the benefits

of a lakes to ocean seaway, there is a sharp diversity of opinion as to the advisability of the undertaking not only on the part of the citizens of this country, but on those of Canada too. Quebec is opposed to the project for the same reason that interests in New York and other American ports are opposed to it. Railroads of the territory in question and the ports of the Atlantic seaboard and Gulf States would be adversely affected.

Canada as a direct competitor of the few Middle Western states bordering the Lakes, would be aided in reducing the cost of its transportation to the seaboard. In the East, apparently New York and Pennsylvania would benefit only in part. The hope held out, that the prosperity of the Middle West which would come about as a result of this seaway in future years would compensate for the immediate loss to American carriers of freight that is vital to their existence is, putting it mildly, taking a long look ahead.

Due to climatic conditions most of the seaway would be closed by ice for more than four months each year and the return on the investment, by reason of the reduction in transportation costs in the movement of bulk materials, must be figured on the benefit a few states would derive during eight months.

The building of this proposed seaway was first prominently brought to attention during the freight congestion of 1920 when the railroads of the country were unable to handle traffic. The situation is different today. Railroads now and for some time to come, have more than ample facilities and will be put to it to earn a profit sufficient to meet their operating expenses, to say nothing of paying their stockholders a return on their investment.

No direct revenue is contemplated from tolls, and the burden of the cost for building canals and locks must be borne by the taxpayers of the nation, which include those who will lose most directly through diversion of traffic away from their ports.

Dr. Harold G. Moulton of the Brookings Institute estimates that three double-track all-freight railroads between the Middle West and the Atlantic seaboard could be built for the cost of the seaway project and these roads would have a theoretical capacity of almost 30 times the theoretical capacity of the proposed waterway and, of course, the railroads could be operated 12 months in the year with fast service.

Experienced shipping men doubt the value of a 27-foot channel through a 2000 mile route including a lift of more than 600 feet through the various locks required.

As to the possible power development in connection with the seaway project, hydro-electric power can be generated at low cost, but as it will have to be transmitted great distances and the transmission cost is about 1 mill per kilowatt for each 100 miles of line, its cost will be greater at distant points of consumption than steam generated electric power at those points.

With the hundreds of millions needed to adequately develop flood control throughout the Mississippi basin lying in the heart of the United States and embracing a drainage area of 1,250,000 square miles, or approxi-

mately 41 per cent of the total area of the country, it is well to consider whether the St. Lawrence project is a rightful use of taxpayers' money at the present time for a doubtful economic development, when the protection of a vast area adjacent to the Mississippi and its tributaries can be prosecuted with the assurance of adequate returns in the protection of life and property, in increased agricultural yields, in increased freight for our carriers, and in increased property values for literally millions of people.

REGULATION OF PUBLIC UTILITIES

THE closer regulation of public utilities and inquiry into the desirability and practical working of holding companies are claiming considerable attention. A financial paper said recently:

"The fact of the matter is the power companies are facing the kind of fight that the railroads faced after the enactment of the Interstate Commerce law, and they may as well make up their minds that their experience will not be greatly different from that of the railroads. As time goes on they will have to submit to a continuing closer control of all their acts. If they are wise they will waste no time or energy in fighting what will in the end be a losing battle."

B. C. Cobb, Chairman of the Finance Committee of the National Electric Light Association, is quoted as saying:

"Regulation, and properly, we have had for many years. It is going to continue. It is important, however, if any additional regulatory laws are enacted that they be reasonable. This not only because of our own sake, but for the sake of those whom we serve and of those whose money is entrusted to our care."

Like the power to tax, the power to regulate, which may be in effect the same thing, is always subject to grave abuses. It will be well for the country and for invested capital, which in most cases is trying to do an upbuilding work, if additional regulatory measures that may be adopted are based upon full knowledge of conditions and with due regard to the effect of the action taken.

Holding companies are to be subjected to a closer scrutiny, presumably as to their capital setup and their operations. There can be no reasonable objection to this, provided it is handled in a way that will be solely for the good of the public and all interests concerned, save those usually classified under the head of politics.

The current Federal Power Commission's report shows the exceedingly complex relationships between controlling and operating companies. Statistical analysis of 43 operating companies holding 48 major project licenses indicates that they are subject to control in more or less complicated systems leading up to 10 top companies. In undertaking to appraise and regulate operating companies which produce electricity at water-power sites under its jurisdiction, the Commission has found that much of the information it needs is in the hands of holding companies by which they are controlled and over which the Commission has no control.

GEORGIA'S BIRTHDAY

GEORGIA'S Bicentennial Commission has made a formal statement of its plans for the 200th birthday celebration of the state. It is to begin February 12 and last through Thanksgiving day, 1933, with every city and part of Georgia joining in the program. One of the important items in the statement given out to the press is contained in the following paragraphs:

"To show to the people of this country and abroad, who will be Georgia's guests in 1933, and to those who will read in the national and foreign press, and listen in over the radio, what Georgians have done with their inheritance and how they propose to continue.

"To reveal Georgia's artistic, spiritual and cultural growth, as well as the achievements which have been made along agricultural, commercial, industrial and educational lines.

"To cause Georgians to become better acquainted with their state, by the interesting and attractive bicentennial exercises and celebration events that will be given in various sections of Georgia in which they will desire to attend and participate."

The purpose of the MANUFACTURERS RECORD has been, for many years, to help the people of the South to gain a fuller knowledge of their own resources and their own opportunities. This work on the part of Georgia with her people will bear good fruit.

RAILROADS SEEK TO REGAIN LOST COTTON TRAFFIC

SOUTHERN and Southwestern railroads have offered to reduce freight rates on cotton in an effort to regain business lost to other transportation agencies. In recent hearings before the Interstate Commerce Commission participated in by shippers, carriers and other interests, the railroads proposed to make substantial rate reductions and asked for the relaxation of rules applicable to cotton shipments to meet the competition of motor trucks and inland and coastwise water lines. The conference is said to have been an exception to the Commission's routine and was a cooperative movement intended to facilitate decisions upon the question of whether to suspend the railroads' proposals, or allow them to become effective.

In a recent report of the movement of cotton through the port of Houston for the 1931-32 season just closed, it was stated that of the record total of the season's cotton shipments, amounting to 2,655,000 bales, more than 1,400,000 bales reached Houston by motor trucks from interior points. This is one illustration of the extent to which railroad cotton traffic has been reduced. The transportation of cotton to river terminals by motor trucks, and shipment to ports by barges and the coastwise shipment beyond has made severe inroads in the principal bulk traffic of Southern railroads in recent years.

WAR DEBTS BASIS FOR BARTER TO EXTEND FOREIGN MARKETS

By
Mark O. Prentiss

OUR international position today is one of great advantage and gives us an unparalleled opportunity to make a tremendous contribution toward world recovery. If we should in any way lose or impair that advantage we will be the less able to assist and benefit either ourselves, or the world as a whole. We should take full advantage of our position as a world creditor and barter with our money credits for extended and re-opened markets of the world for the products of our farms, factories, mines and forests.

In presenting this plan for consideration and frank discussion, I would emphasize the point that it is not intended to be taken as a definite, fixed plan that has been worked out to its ultimate conclusion. That there is merit in the idea, I am sure, and in this I have had confirmation from many engaged in international commerce and finance. That the assurance of some such plan would receive the earnest consideration of the Congress has been given me by some of its most influential members.

It has always surprised, and continually impressed me, that so few people in our country, as a whole, are export conscious, or "Internationally Minded," because those of us who are more directly concerned with our foreign trade feel that we can never have a restoration, with even a reasonable prosperity in this country, or abroad, until the trade channels are re-opened for the flow of goods and commodities throughout the world. When President Hoover was Secretary of Commerce, he made a statement that under normal conditions our foreign trade supplied a livelihood for 2,400,000 families, or approximately 12,000,000 of our people.

Any discussion of our foreign trade, and particularly our exports, calls for serious consideration of the condition of the foreign countries that owe us

money, endeavoring to appraise their ability to pay.

There are 13 European countries that owe us \$11,500,000,000, and they have given us their bonded pledge to pay in full during the next 60 years. They are Belgium, Finland, France, Great Britain, Hungary, Italy, Poland, Rumania, Czecho-Slovakia, Esthonia, Latvia, Lithuania, and Jugo-Slavia. These obligations were fixed by the Debt Funding Commission created by Congress, negotiating with each of the debtor countries separately arriving at the amount that they would pay—without distress, or even inconvenience. The total amount due us from these 13 countries next year is \$280,000,000. This amount increases slightly each year so that, by 1935, it is estimated it will be a little over \$300,000,000.

There are many among us whose patriotism and loyalty cannot be questioned, who have reached the conclusion that these debtor countries simply cannot pay us the installment due on their obligation next year, and consequently, we must either grant an extended moratorium, or reduce the amount due—or cancel it altogether. It is not my purpose to take issue at this time on this point, but in this connection, I bring to their attention the fact that when we were adjusting these debts, and approached settlement on the basis of their ability to pay, we generously cancelled some \$6,000,000,000 of what was legally and justly due us. We made this sacri-

The tragic effect of the decline in our exports can be best understood and appreciated by a study of the following table—comparing the first five months of 1932 with the corresponding period in 1929, showing in a few individual cases how greatly the value of our exports have declined:

	1929	1932
Industrial Machinery	\$116,000,000	\$27,500,000
Electrical Apparatus	46,300,000	20,700,000
Passenger Automobiles	128,700,000	13,500,000
Motor Trucks	51,000,000	5,100,000
Automobile Tires	16,500,000	1,500,000
Agricultural Machinery	60,000,000	4,700,000
Chemical Products	64,500,000	31,300,000
Petroleum Products	221,900,000	96,000,000
Glass and Clay Products	4,600,000	1,900,000
Steel Mill Manufactures	42,100,000	6,700,000
Cotton Manufactures	51,500,000	17,600,000
Tobacco Manufactures	9,700,000	3,200,000
Typewriters	10,200,000	1,500,000
Other Office Appliances	13,600,000	5,600,000

Mark O. Prentiss was one of the first proponents and organizers of the Chamber of Commerce of the United States. At the close of the war he founded and was Chairman of the Bankers' Foreign Credit Clearing House. He, together with Lindsay Russell and Richard Washburn Child, founded the Council on Foreign Relations. He has circumnavigated the globe in the interest of American business, and American shipping; has sold merchandise and services in most every country of the world. He is a well known writer and lecturer on international subjects.—Editor.

fice on the insistent recommendation of many that by cancelling such a huge sum of the amounts due us we would restore the purchasing power of our debtors, and thus indirectly, though surely, benefit ourselves. This theory has been definitely and tragically refuted.

That we should be asked to believe that these 13 debtor countries are unable to pay us \$280,000,000 next year is a sheer imposition. We must be prepared for an avalanche of propaganda in a united effort to free these countries from this obligation and force the American taxpayer to assume it—and make no mistake about this, that when any, or all, of this debt is cancelled, it means only the freeing of the debtor from his obligation, the debt does not disappear. If we cancel, every dollar of it must be paid by the American taxpayer, because our Government borrowed this money from him to loan to these European countries. When it is thoroughly understood that this payment due us represents less than two per cent of the national budget of these debtor countries, I for one cannot see any great hardship they would endure by paying it. Upon further analysis and reflection, this position is sustained when we know that of all taxes collected from the people of these 13 debtor countries by their governments more than 80 per cent is appropriated and spent for wars—past and future.

If such propaganda is effective in distorting public opinion to such an extent that Congress would re-create the Debt Funding Commission, re-open the question of the debtors ability to pay, I hazard the opinion that such negotiations, based on our previous experiences, will result in a readjustment and prob-

able cancellation of half of the entire obligation. And if such a readjustment were to take place, are there any among us who really believe that we would ever collect a dollar of the remaining half? If we re-open this subject and cancel all or any part, it is clear to me that we at once lose the entire \$11,500,000,000, and when I say "lose it," I mean it is gone forever as far as we are concerned. And these debtor countries will merely have that much more money to use in strengthening their military arms, or strengthening their commercial structure to better compete with us in the markets of the world.

The problem before us is clear, and definite. We must do everything possible to restore our export business, and in this connection we should heed the counsel of Senator Borah when he says, "I do not favor further moratorium. It would not materially help conditions. Readjustment on a basis of capacity to pay would be almost equally ineffective. Neither, or both, would open markets or start trade. Readjustment or cancellation should be made to depend upon a program which gives reasonable assurance that the American taxpayer will receive better than debts.

"Any plan to aid agriculture," continued the Senator "is doomed to failure unless European and other foreign markets are permanently improved to afford a steady outlet for the products of American farms and factories."

No one can take issue with Senator Borah as he states these facts. He proposes to cancel a part of the debts due us if our debtors will make a substantial commitment toward disarmament; and while I can subscribe to the Senator's idealism, and am proud to say that I hold the same views and hopes, yet I believe that disarmament is one thing we cannot trade with, nor secure any direct benefits from.

The matter is too complex and is subject to too many interpretations. It would be impossible to reach any sort of agreement whereby we cancel debts in proportion to our debtors' pledge of disarmament that would receive the approval of Congress for some years to come; and Congress is certainly justified in withholding any such commitments of a definite sacrifice on our part, in view of the recent disclosures of the "Gentlemen's Agreement." It would be far better for all concerned if we let the debtor countries solve their own armament problems, as they will soon be forced to do.

While we hold them to their sacred commitments and expect them to pay us the \$280,000,000 due in 1933, we can accomplish what would amount to a cancellation, and I believe create a far better feeling of good will than now exists, if we were to negotiate with each debtor

country separately, and say, in substance:

"Pay us what is due under your obligations this year, and if you buy a little more from us during 1933 than you did in 1932, we will give you in products of our farms and factories and mines, an amount valued in dollars, at your port of entry, equal to the amount that you pay us on your national obligations."

If we are going to be called upon to give away \$280,000,000 next year, I maintain that we should at least be given the privilege of designating in what form or manner this gift shall be made, whether in cash or goods. I believe, that we can well afford to give it in merchandise and farm products, because, while they in themselves will add to the wealth and the prosperity of our debtor countries, at the same time, will remove surpluses and stimulate industry in this country. But, to give away \$280,000,000 in cash to other people to use in strengthening themselves as competitors, is sheer folly. If this Government is to be forced into subsidizing somebody, it is far better that we subsidize our own people who are now staggering under a depression of over-production.

If the President, after securing a proper authorization from Congress, should set up a commission of representatives of the Foreign Loan Board, the Treasury Department and the Department of Commerce, to carry on these negotiations, we could find it most profitable in this way to dispose of some of the enormous quantities of cotton and wheat that are now owned by the United States Government. And if by this disposition of our surplus stocks, we could bring cotton, wheat and other commodities back to more normal prices, the newly created wealth among our farmers would start the wheels of industry, and go far to solve our unemployment distress.

Any organized effort to secure export markets for more of our farm products, as well as miscellaneous manufactured articles, is entitled to immediate consideration, and the earnest support of the Congress.

A recent report of the Department of Commerce lists a few of the more important products sold in foreign markets with the percentage of their total production exported in 1929:

	Percent Exported
Cotton	54.8
Wheat	17.9
Rye	20.9
Tobacco, leaf	41.2
Lard	33.3
Gasoline and naphtha	13.8
Kerosene	39.7
Lubricating oil	31.0
Copper	36.0
Agricultural machinery	23.3
Printing machinery	29.2
Sewing machines	28.0
Automobiles	10.0
Locomotives	20.8
Typewriters	40.1

If we can put in operation a plan whereby the United States Government, after collecting \$280,000,000 from these debtor countries, will immediately pay over that same amount to our manufacturers and farmers, secure their products in that amount, and give these products to these same debtor countries, it will have the effect of cancelling the debt due us, and at the same time, our own people will get the direct benefit from its collection.

The putting into effect of a plan such as has been outlined here would be comparatively simple. Each month the purchases of these debtor countries could be audited and settlements made along the lines indicated. It is important that we calculate the values in dollars, C.I.F. at port of entry, so that American Insurance Companies and American shipping interests would be made secure in their share of this increased business.

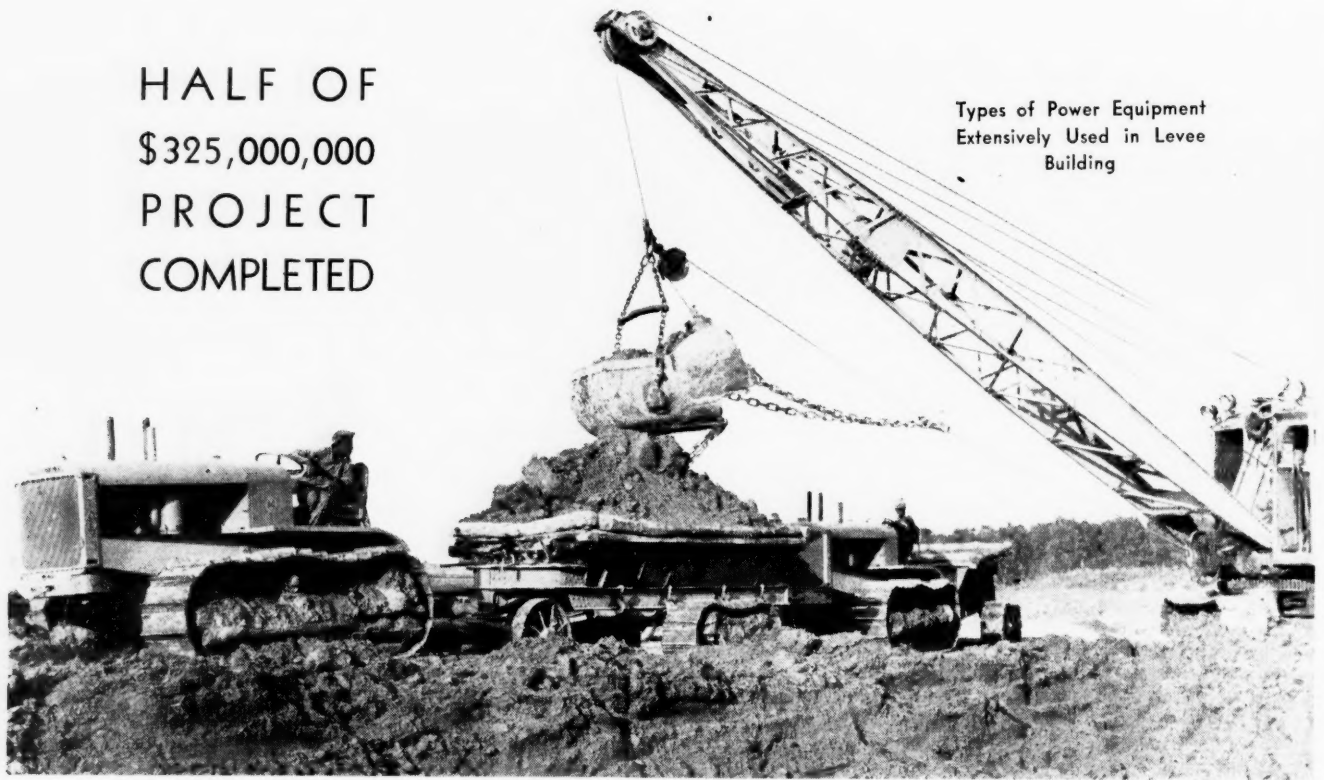
The greatest advantage that I see in the plan is that these arrangements are made for one year only, and are subject to renewal from year to year, according as might then appear their ability to pay and our necessity to give. We do not cancel and forever lose an asset of \$11,500,000,000, but we do offer to give \$280,000,000 next year—and perhaps \$300,000,000 the next year. In the meantime, the exportation of these amounts will have created a tremendous stimulus all along the line of American industry, will have stabilized commodity prices on a basis profitable to our farmers; we shall have satisfied the insistent demand of our debtors that we relieve them from payments which they say they are unable to make, and certainly, under these circumstances, no longer will any of our foreign customers have either the justification, nor the inclination, to point the finger of jealous hate toward us and hiss "Shylock."

Since the above was written for the MANUFACTURERS RECORD, President Hoover has delivered his speech of acceptance, at Washington, the night of August 11, in which he made the following statement:

"My views in opposition to cancellation of war debts are a matter of detailed record in many public statements and a recent message to the Congress. They mark a continuity of that policy maintained by my predecessors. I am hopeful of such drastic reduction of world armament as will save the taxpayers in debtor countries a large part of the cost of their payment to us, and if for any particular annual payment we were offered some other tangible form of compensation, such as the expansion of markets for American agriculture and labor, and the restoration and maintenance of our prosperity, then I am sure our citizens would consider such a proposal. But it is a certainty that these debts must not be cancelled, or these burdens transferred to the backs of the American people."

MISSISSIPPI FLOOD CONTROL

HALF OF
\$325,000,000
PROJECT
COMPLETED



Types of Power Equipment
Extensively Used in Levee
Building

FAVORABLE progress on Mississippi River flood control work is reported in each of the engineer districts. The program under way, involves an annual expenditure of \$35,000,000 for levee construction, bank protection work, dredging and contraction works. During the fiscal year 1932 more than 73,000,000 cubic yards of earthwork were placed in levees completed to the grade and cross section adopted under the Flood Control Act, approved May 15, 1928, using almost every known method of moving earth. These operations, under way along the river from Cairo, Ill., to below New Orleans, have resulted in the utilization of an array of contractors plant equipment including standard units employed generally, other standard machines with special attachments, and still others of entirely new design, built especially for a particular phase of earth handling. Engineers, contractors and machinery manufacturers are cooperating in developing units to make possible the economical promulgation of a project of this magnitude, involving a total expenditure of over \$325,000,000 in a ten year period. About half of the program has been completed.

A summary of construction work accomplished during the last fiscal year and of the program outlined for the year 1932-33 for each of the three Mis-

issippi River Districts is presented herewith.

Second New Orleans District

Lt.-Col. J. N. Hodges

Corps of Engineers
District Engineer

Levee construction was hampered by high river stages, extending from December to June, practically all levee work being stopped from January to June, except on projects located well back of, and protected by existing controlling levee lines. The work of high water protection along the Red River and in the Atchafalaya basin started early in February and continued into April, consisting generally of raising and strengthening low and weak levees, constructing new loops and deflecting dikes and in protecting levee lines from wave wash and the action of storms.

New equipment of improved design has been provided for much of the work, and older equipment has been improved in many instances. Steady progress towards the use of larger and heavier construction plant continues, particularly the tendency toward longer booms and larger bucket dragline machines. Aluminum alloy booms, with 25 feet increase in length over the original booms

and no change in bucket capacity, are quite common. A number of coal-burning machines have been converted to the use of oil as fuel. Diesel, Diesel-electric and electric powered machines predominate among the new equipment. Modern power excavators have also been introduced on jobs in this district.

In the past fiscal year 80 miles of levee completed to the grade and cross section adopted under the Flood Control Act, involved the placing of 27,500,000 cubic yards. Main levees in this district now contain approximately 53 per cent of the yardage required under the project.

Repairs and maintenance of existing bank protection work amounted to 1,875,000 square feet of concrete mattress, the total mileage of river bank protected in the district now being 38.

The Bonnet Carré Spillway structure was completed during the year and the side levees brought to final grade and section.

Work proposed for the present year includes the construction of 53 miles of levee, involving 17,500,000 cubic yards, in the Atchafalaya basin to protect large areas of land from annual overflow by back water. About 8,000,000 cubic yards of work on the Mississippi and Red rivers is also proposed for 1932-33, as

well as the completion of contracts requiring the placing of 31,000,000 cubic yards in Mississippi River levees. Bank protection work scheduled calls for the placing of 2,300,000 square feet of subaqueous mattress in repair and maintenance of existing revetments and in the placing of 1,560,000 square feet of subaqueous mattresses, and upper bank paving in new revetment work.

Vicksburg Engineer District

Major T. B. Larkin
Corps of Engineers
District Engineer

In the fiscal year 1932 the major portion of work has been on levees, 30,883,000 cubic yards of earthwork having been placed. This yardage completed 176.1 miles of levees to the adopted grade and section, and brings the approved project for levees to 64 per cent of completion.

During the past few years there has been little change in equipment, except that individual manufacturers have improved their machines. The methods of placing yardage are: Tower excavators, boom machines, hydraulic dredges and various types of hauling equipment, such as tractors and wagons, motor trucks, industrial railroads and teams, using different methods of loading.

The program on levees and revetments during this year is the continuance of the project. Levee construction will be carried on during the year and revetment operations will be commenced shortly.

Memphis Engineer District

Major Brehon Somervell
Corps of Engineers
District Engineer

During the past year 14,689,000 cubic yards of material were placed in levees,

Concrete Mattress Casting Plant at Natchez, Miss.



Constructing New Levee 18 to 28 Feet High at Clark, Miss., With Aid of Latest Earth Moving Power Equipment

practically all the work being done during July and December, 1931. At the end of June, 1932, 55,000,000 cubic yards

Motor Driven Tower Dragline on Bedford-Bayou Vidal Levee



out of a total of 165,632,000 cubic yards in the project were in place.

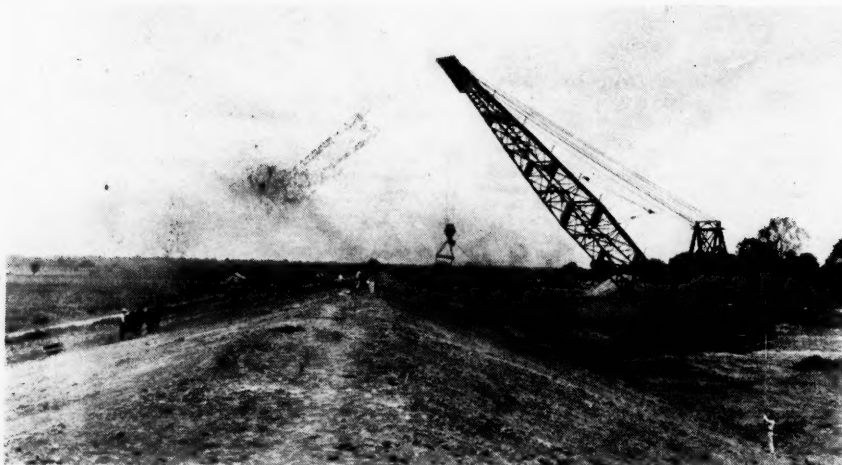
Equipment used in this work consisted principally of draglines, cableway machines of large capacity, elevating graders, tractors, industrial railroad units, large dump wagons with crawler type traction, and motor trucks fitted with dual wheels or crawler type tractor. The larger levee building draglines handle from 3½ to 10-yard buckets on booms ranging from 125 to 165 feet long. Smaller draglines with 45-foot booms and buckets ranging from 1 to 3 yards are used for loading hauling equipment. The cableway machines handle from 8 to 12-yard buckets.

There are now 53 items of levee work under contract involving a total yardage of approximately 24,000,000, of which 21,000,000 yards have been let this fiscal year. There are 45 contractors engaged, and government-owned machines are undertaking approximately 1,500,000 cubic yards. Three concrete walls are being constructed at Cairo, Ill., Caruthersville, Mo., and Helena, Ark., with lengths of 4532 feet, 3097 feet and 2263 feet respectively, involving a total of 10,000 cubic yards of concrete, 217,500 pounds of reinforcing steel, and 407,000 square feet of steel sheet piling.

The latest addition in the line of levee equipment consists of several sections of endless conveyor belts supported by bearings mounted on steel trusses, with the belts driven by electric motors. These sections are placed normal to the levee under construction.

Dumping crawler-type machines of 5 yards capacity were recently introduced in this district. Similar to crawler-type wagons, except that they are self-propelled, they run equally well forward and backward. In the dumping position the ends of the bed of the machine spread the material, thus giving results similar to those obtained by the use of bulldozers.

In the fiscal year 1932 a total of 83,-



Bayou Vidal-Elkridge Levee Construction

445,000 feet of new revetment was constructed and placed for bank protection. About 4,844,000 square feet of mattress were constructed and placed as repairs and renewals of old work. Articulated, reinforced concrete slabs, to form mattresses which are very flexible, were introduced in this district during the past season.

This fiscal year about 30,000 lineal feet of new bank protection will be placed in seven localities, and repairs will be carried on in twenty localities.

During the past season, 46 permeable pile dikes, aggregating in length 66,957 feet, were constructed and approximately 400 feet of dike was constructed for repairs to, or renewals of existing work. This season 30,740 feet of new pile is being constructed in six localities by contract, and 7500 feet is being constructed by hired labor with government-owned plant. Two major repair jobs involving 9550 feet of dike are being done by contract, and eleven small repair jobs are being done by the government. The existing project calls for 420,350 linear feet to be constructed, of which 29 per cent was complete at the end of the fiscal year 1932.

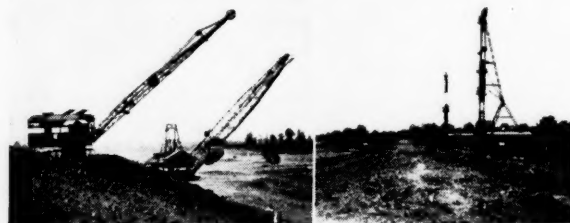
In the last fiscal year eight dredges moved 12,244,000 cubic yards of material, of which 8,205,000 yards were dredged from the Mississippi River channel, the work providing a channel for low water navigation 300 feet wide and 9 feet deep at all periods of the year. Dredges used are all of the jet-agitation head or pan type, ranging from 32 to 36 inches in diameter, with the exception of one cutter-head type, 18-inch dredge.

In July 1932 two 32-inch self-propelled dredges, the "Potter" and "Ockerson," built by the Dravo Contracting Co., Pittsburgh, at an approximate cost of \$1,000,000, were added to the fleet of dredges in the district. These dredges have a length of 210 feet, a beam of 46 feet, a depth of 9 feet, a draft of 5 feet, and are rated at 1400 horsepower.

This season experimentation will be

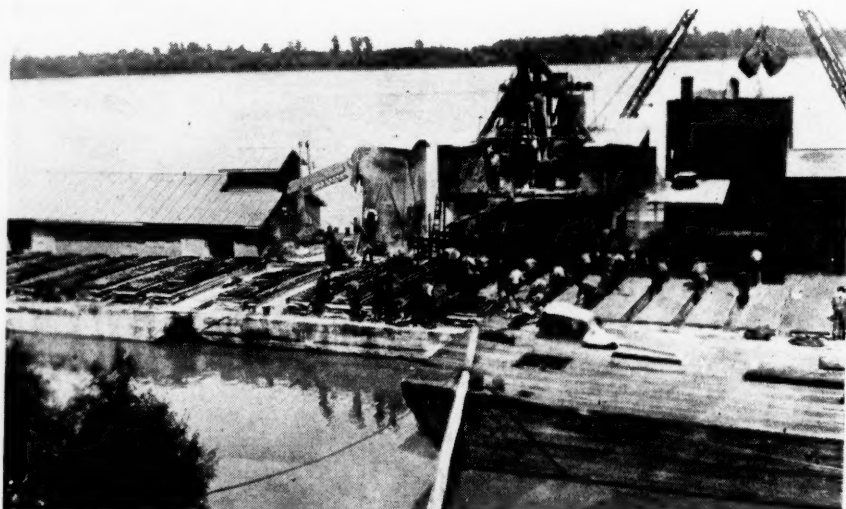
carried on with drag-dredging. Three dredges will be converted so as to drag the river bed instead of using former methods. Experimentation will also be undertaken in connection with corrective dredging which involves the con-

Left—Two Electric Power Machines. Right—Topping and Dressing Operations on Grand Lake Levee With Draglines.



struction of sand dikes as an aid to permeable pile dikes in adjusting the Mississippi River channel. Construction of dikes for the purpose of contracting the width of the river in wide, flat and troublesome reaches, adjusting the align-

Plant for Making Concrete Revetment Slabs



ment and confining the channel, thereby causing the crossing to scour out and deepen, have been successful.

An intensive study of all metals used for reinforcing and fastenings in revetments was initiated in September, 1931, to determine what materials will be practical for use from the standpoint of prolonged life through corrosion-resistant properties and yet be economically justified.

Among the types of machinery used for carrying forward flood control work along the Mississippi River are the following: Allis-Chalmers, Fordson, Iron Mule, McCormick-Deering, Caterpillar and Cletrac tractors; Trackson crawler wagons; Thew-Loram shovels and dragline; Monaghan and Bucyrus-Erie draglines; Bucyrus-Erie electric tower machines; Vulcan Plymouth and Whitcomb gasoline locomotives; Western rail dump cars; Lakewood, Kochring and Smith concrete mixers; Butler Bin Co. and Blaw-Knox cement, sand and gravel hoppers; Atlas Car & Mfg. Co. and Continental dump cars; Industrial-Brown Hoist cranes; American Hoist and Derrick Co. hoist; Barber-Greene portable belt conveyor; Flory towing winches; Kohler electric light outfit; Insley traveling bucket; Atlas, Fairbanks-Morse, Superior, Winton and Busch-Sulzer Diesel engines; Baldwin locomotives; Marion railroad type shovel; Link-Belt and Osgood gasoline draglines; Diamond T, Dodge Brothers, Ford, Indiana, International, Chevrolet and Reo trucks; P. & H. shovels, cranes, draglines; Kaiser Paving Co. crawler type cart; Athey truss wheel wagons; Linn tractors; Western Crawler wagons; Northwest gasoline shovel;

Page, Williams, Blaw-Knox, Insley and Omaha buckets; General skimmer scoop; Universal truck crane; Page dragline; Sauerman drag bucket and tower machines; Climax, Wisconsin, Hercules, LeRoi, Waukesha, Continental and Novo, gasoline engines; Nordberg track machine; American crane; McKiernan-Terry and Vulcan hammers for pile drivers; Fuller-Kinyon blower system; Blaw-Knox gantry crane; Freeman turntable; Fairbanks scales; Adams leaning wheel scraper; Byers excavator; Bucyrus-Erie mechanical bank grader; Erie dragline bucket; Ingersoll-Rand and Allis-Chalmers air compressors.

NATIONAL ECONOMY LEAGUE

A Non-Political Coalition of All Elements of the People to Stop Waste in Government and Correct Abuses in Legislation That Imperil the Nation

By

Admiral Richard E. Byrd



IN accepting the Chairmanship of the National Economy League, the motive that prompted me more than any other was the realization of the terrific burden of taxation and the effects of such taxation upon our economic system, particularly as relating to unemployment.

The combined debt of our city, State and Federal governments is now seven times as large as it was in 1913. It has reached the astonishing total of \$30,000,000,000. The national deficit is nearly \$3,000,000,000 and in order to balance the budget we have had to, in times of extreme stress and depression, increase taxation. Unless real effective action is taken this burden will have to fall more and more upon a larger majority of the people than ever before for the reason that income taxes, sur-taxes and inheritance taxes cannot supply the large sums they have in the past. Big incomes are comparatively scarce today.

We are faced with a still greater increase in taxation, which, unless corrected, will lead to even greater hardship than already experienced. If we cannot increase taxes without disaster, and if we must not increase our debts, then the only answer is for the cities, counties, States and the Federal Government to reduce their enormous expenditures. Among the many reasons for governmental economy, and one that appeals to me mostly, is that the poor are hardest hit by high taxes. The increased throttling of industries will put more and more wage earners out of jobs and thus increase suffering. The wage

earner, though he may not realize it, is disastrously affected by inordinate taxation. You are asked to ponder this fact for the wage earner must join industry in this battle we have ahead. The National Economy League should be their League as well as a League for all other elements.

This League was created in May of this year largely by ex-service men, most of whom saw service in France. It is in no manner limited to Veterans. Its non-partisan character and the need for its existence are evidenced by the men who have agreed to serve on its Advisory Council. These national leaders are Alfred E. Smith, Calvin Coolidge, Elihu Root, Newton D. Baker, General John J. Pershing and Admiral William S. Sims.

While the League has a broad program covering Federal, State and municipal economy, its first objective is to correct the abuses that have gradually crept into legislation affecting the Veterans. The League advocates a just and liberal policy towards the dependents of those who gave their lives for their country and towards the Veterans who actually suffered disability in line of duty. Legislation has gone far beyond that point, however. Despite the excellent laws enacted in 1917 at the instigation of President Wilson which were devised as a substitute for, and to make unnecessary, future pension legislation, one Congress after another since then has passed laws widening the scope of payments to Veterans.

In making an analysis of this subject, the National Economy League discovered that the Government is spending \$452,000,000 annually in excess of just and equitable payments. In other words, this amount is being expended on ac-

count of Veterans who in no way suffered disability in line of duty. Furthermore, these payments are constantly increasing, and it has been estimated by the head of the Veterans' Bureau that by 1945 the expenditures on account of Veterans' legislation will have totaled \$21,500,000,000—more than the total cost of the war. This is provided no new legislation is enacted or no repeal of the present laws obtained. These payments are in addition to those being made on account of the "Adjusted Compensation Act" or bonus law.

The number of casualties in the United States forces in the World War, including killed, wounded, gassed, and deaths from disease, was 325,000. The number of veterans now receiving compensation from the Government is 718,000. There are 395,000 veterans who are receiving allowances for disabilities avowedly having no connection with war service. Under existing laws, it is estimated by the Veterans' Administration, the non-war cases will increase to 561,000 by June of next year and to a much larger number thereafter.

This condition is nothing more nor less than a dole for a very small percentage of the population. We have created in this country a privileged class and have burdened ourselves with an enormous annual charge, amounting to about 12 per cent of our present budget, to support this class and we are placing upon rising generations a burden that is unfair and uncalled for. Thirty million young men and women have come of age since the end of the World War, about one-fourth of our population. What is to be their reaction to the waste and extravagance that have characterized our veteran policy.

It is such abuses of the people's money that the National Economy League has been formed to fight. This is not just another league. It is a non-political coalition of all elements of the people—the loyal legion of them—to use their national right to put an end to a national peril.

Minorities well organized can rule for good or bad large bodies which are disorganized. We, the majority, have been so ruled by minorities and privileged groups. We are now organizing the inarticulate majority. It is as important now as it was in time of war that we present a united front. By informing people of the facts, by driving home the truth, we are confident that we can be of great service to the country by reducing wasteful expenditures and preventing further raids on the public treasury.

GOVERNMENT COMPETITION

By
B. L. Winchell

Chairman Executive Committee,
Remington Rand, Inc.,
New York City

THE broad extent of our National Government's competition with the American businessman—the taxpayer—is poorly understood by the average voter.

These voters elect the senators and representatives who appropriate the money which creates this hurtful competition. Every taxpayer and many working men who are not on the Government payrolls are involved—and hurt.

The National Association of Manufacturers is re-opening this question only from the standpoint of the manufacturer, and its Committee on Government Competition, of which I am chairman, designated to make the presentation has adopted as its platform the following:

1. The Government ought not to engage either directly or through subsidies in the manufacture, production or purchase of commodities or services for sale or re-sale in competition with private enterprise.

2. It ought to procure commodities and services for all its uses from the commercial industrial world.

3. The Navy Yards are established to maintain the armed fleets of the United States and are justified only while fulfilling that function.

The Federal arsenals are equipped to produce war materials not generally produced commercially. They should not be employed to produce commercial or military articles manufactured by or obtainable in quantity from private industry.

4. Government departments, while continuing to engage in any act of production or service, should be required to establish and maintain a standard system of accounting containing those elements ordinarily recognized in all similar conditions of private operation.

5. Other things equal, the Government should give preference in purchasing of commodities and services to domestic producers.

We realize that aside from statements of fact which our Committee shall present to the Congressional Investigating Committee, of which Representative Shannon is Chairman, the course from which we can hope to secure results is to urge manufacturers throughout the country to charge themselves with the responsibility of convincing those who are elected, and to be elected, to represent them in Washington that our platform is sound and should be followed.

TENNESSEANS TAKING DETERMINED ACTION TO REDUCE COST OF GOVERNMENT AND TAXES

By
W. Gordon McKelvey

Assistant Secretary,
Tennessee Manufacturers Association,
Nashville, Tenn.

THE taxpayers of Tennessee are beginning to realize the truth of the statement of Chief Justice Marshall that "the power to tax is the power to destroy." Never have the citizens of the old Volunteer state been more "tax-conscious" than they are today.

Realizing through their investment in business and the ease by which tax assessors may reach them that they constitute the largest and most substantial tax paying group in Tennessee, the industrial and corporate interests of the state, speaking through the Tennessee Manufacturers Association, are enthusiastically working to reduce the cost of all taxes, Federal, State and local.

President J. E. Edgerton of the Association appointed a state-wide committee of leading industrialists, economists and attorneys to study the subject and plan a program. This committee decided that the cost of government in Tennessee was at least twice what it should be, especially during this period of economic depression.

Machinery was set in motion to arouse industrial interests and the public to the crisis confronting them. A Declaration of Principles was drawn up and in this there was set forth not only that the cost of government at present figures would be dangerously high even during a prosperous period, but that now it is indefensible from any viewpoint and is a chief hindrance to economic recovery.

That economy in government should and must be accomplished through the elimination of unnecessary bureaus, commissions, boards and employees on public payrolls, as well as by drastic curtailments in appropriations of every sort.

That the people should not be content with a smaller reduction in government costs than 25 per cent.

Furthermore, that no candidate should

be elected to public office who has not pledged himself to do all in his power to reduce the tax burden at least to the amount stated.

This "Declaration of Principles" has been given the enthusiastic, loyal support of not only the industrial interests of the state, but of 162 commercial and civic organizations, besides newspapers and what is equally important, by 100 candidates for the state legislature, who were asked to endorse the Declaration.

Since the movement was started early in the year, approximately 40 counties, nearly half the number in the state, have reduced their budgets, some of the reductions being drastic, and have lowered tax levies accordingly. Other counties are laying similar plans.

If the purpose of the movement is accomplished with a reduction of not less than 25 per cent in all forms of government, then there will be saved to the taxpayers of the state during the next year from \$25,000,000 to \$30,000,000.

The industrial and business interests, which are contributing most to support the government, are aroused to a fighting point and if a candidate expects to receive sufficient votes to be elected to office, he must pledge himself to reduce appropriations and expenses of the office he is to administer, and that during his term he will return to the back-broken taxpayers at least part of their money in the form of reduction in taxes. Secretary Gilbert of the Association said in a recent interview: "We are determined to see this matter through and demonstrate to the citizens of the state that when groups of citizens speak, their voices are heard."

The "Economy in Government" group of organizations will work closely with the members of the State Legislature, when that body convenes in January, to reduce the tax burden.

BUDGETING

LOCAL GOVERNMENT

By
Maury Hopkins

THE adoption of budget making procedure in local units of government in West Texas—city, county and school—is the first aim of the West Texas Chamber of Commerce program for the reduction of public expenditure. The program was launched over a year and half ago. Great progress has been made in the attainment of the purpose.

Affiliated with the regional chamber are 130 cities in as many counties in Texas. The chamber of commerce in each of the affiliated cities was asked to create a local public expenditure committee to be affiliated with the Central Public Expenditure Committee of the West Texas Chamber of Commerce. To date, 90 of these committees have been organized and are functioning. This plan for bringing about a reduction in the cost of government is unique in that it called into existence no new organization. The task undertaken—that of reducing expenditure—is a long time program. Recognizing the permanency of the modern chamber of commerce and that its membership is made up of taxpayers, the job is regarded as especially adapted to it.

The committees were created for the purpose of cooperating with public officials in promoting efficiency and economy in governmental expenditures commensurate with economic conditions.

So budget making was the first assignment made by the Central Public Expenditure Committee to the local committees. The local committees are asked to wait upon their county, school and city officials and secure a definite understanding about the installation of the budget making procedure. They ask the officials to prepare a budget, offering clerical aid if necessary, and submit copies to the members for independent study and research. The committee makes recommendation and encourages attendance at public hearings as required in Texas. After the budget is adopted, the committee periodically waits upon the public officials to see how the budget is being administered and cooperates in administering it.

Public officials in West Texas have re-

sponded wholeheartedly to the plan. They have welcomed the participation of the taxpayer committees in their administration problems. Very often they have been anxious to curtail or make innovations, but felt that to do so would not meet the approval of their constituents. Support of the committees through the public hearings have enabled them to proceed fearlessly knowing that they were substantially supported.

To be of the maximum assistance to the 90 local committees, the West Texas Chamber conducted two budget making institutes and 75 committees were represented at them. A manual on budget making was prepared by the Central Committee's Research Director, D. A. Bandeen, Manager of the West Texas Chamber of Commerce, and distributed to the committees. It was used as a sort of textbook at the institutes.

The manual is in three sections. The first is devoted to the form and content of the budget, and sets out a workable uniform budget form. The second is an actual city budget made in accordance with there commended form. The third section gives the suggested work program for local committees.

The manual has met with a wonderful reception. It is now in its third printing, and it is being used by other regional chambers in Texas for local public expenditure committees organized along the same lines as those of West Texas.

Negative suggestions given in the manual for local committees succinctly outline the policies being pursued by the West Texas Chamber of Commerce in its work. They are (1) Don't demand that valuations or tax rates be decreased without recommending and supporting decreased expenditures. Be constructive. (2) Don't try to tell the taxpayers whom to elect; but let's cooperate with the officials which taxpayers have elected. They are, perhaps, just as honest and capable as any others. Be non-political. (3) Don't permit the inside information you get from the tentative budget to be used by some politicians for unwarranted criticism of your public officials. Be fair. (4) If an issue develops, let that be upon policies and programs having to do with expenditure, and not upon getting votes. Be for measures, not men.

\$4,000,000 Saved to Taxpayer

Results obtained so far ably support the practicability and usefulness of the plan. The Central Public Expenditure

Texas Communities Save Taxpayers by Adopting Budget and Definite Program Controlling Expenditures

Committee of the West Texas Chamber estimates that over \$4,000,000 have been saved to taxpayers through the activities of affiliated committees.

Concrete examples of the savings are found in many cities. The committee functioned in all three units of government at El Paso, one of the larger West Texas cities. Savings of approximately a half million dollars in the current year's budget were made. The public officials welcomed and worked wholeheartedly with the committee from the El Paso Chamber of Commerce.

At Abilene, a city of 25,000 people, savings in the city budget amounting to \$96,000 were effected. This is nearly one-sixth of the total budget of over \$5,500,000. Of interest was that the city officials in preparing the budget cut off \$16,000 and thought they could go no further. After the work of the committee, \$80,000 more were saved.

Big Spring, a city of 15,000, effected a 10 per cent saving or \$21,000.

Other examples could be given.

The West Texas Chamber of Commerce contends that the participation of taxpayers in budget making procedure is a greater responsibility, and of more value than the taxpayers participation in balloting—in electing the public officials. As an editorial in West Texas To-day, the Chamber's official magazine pointed out:

A budget fixes and decides the activities and functions of government. It prescribes the practices and procedure to be followed in administration. It controls every item of expenditures and income.

CONSTRUCTION FEATURES of 30,000,000 GALLON COVERED RESERVOIR at LOUISVILLE

THE 30,000,000-gallon Cardinal Hill Reservoir of the Louisville Water Company, Louisville, Ky., consists of two compartments with vertical side walls and reinforced concrete supporting columns and roof, covered by one foot of earth. Surface drainage of the flat roof design is obtained by slight variation in the thickness of the earth covering.

The structure is designed for a 20 foot depth of water when filled to capacity estimated at 30,000,000 gallons. Inside dimensions of the two reservoirs are 392 feet wide by 505 feet in length. The reinforced concrete walls are 24 inches thick at the footings and 12 inches wide at the top. The reinforced roof slab is 8 inches thick. The supporting columns

are 20 inches in diameter and spaced 20 feet in both directions. The general thickness of the reinforced floor slab is six inches, the bottom having a slight pitch toward the inlet pipe.

In general the reservoir is one-half in excavation and the other half above grade; the walls being protected by earth embankments sloped one and one-half horizontal to one vertical.

One Erie steam shovel, one Erie gas-air shovel each of one-yard capacity, and one Koehring gas shovel of $\frac{3}{4}$ -yard capacity were used in excavating. Mack 5-ton trucks were employed, at one time as many as 22 trucks were in operation. A small amount of rock encountered near the bottom, had to be excavated by blasting and this was removed with a Northwest crane.

The total amount of excavation was



Equipment for Lowering 60-Inch Pipe Into Trench

Interior View of Covered Reservoir



880,000 cubic yards. The excavated material was used for constructing a roadway 3800 feet long and 20 feet wide.

The total amount of concrete in the job was 14,047 cubic yards. The mix was 1-2-4. About 1380 cubic yards of 1-3 $\frac{1}{2}$ -7 mix concrete were used to bring the bottom up to grade after the rock excavation.

In all concrete, 10 per cent of the volume cement was hydrated lime. The concrete plant, located at the south end of the reservoir structure about midway between the eastern and western walls, included a 1-yard mixer with storage bins over the mixer for sand and gravel. Sand and gravel were dumped into conveyor bins and delivered to overhead bins by bucket conveyor. Cement was delivered to the mixer on a belt conveyor from the cement house. The contractors laid narrow gauge industrial track wherever needed, and on this track concrete was delivered to various points on the job in side dump type concrete cars. The cars were lifted by crane and

delivered to points needed.

One of the special features was the covering of the entire bottom of the reservoir with concrete $\frac{3}{4}$ -inch thick of 1-2-4 mix. The aggregate in this concrete was pea gravel. The bottom was first rolled with a 15-ton roller to grade before placing the concrete. This insured clean setting conditions for placing reinforcing steel. If this method had not been followed, the reinforcing steel would have been covered with mud after each rain and would have to have been lifted and washed before replacing.

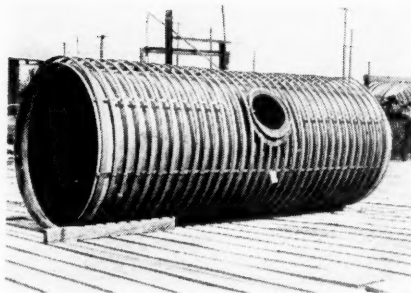
All floor and roof slab were kept wet by flooding for three weeks after being placed. The walls were kept wet by the use of perforated pipe extending around the top. Water was furnished free by the Louisville Water Company to contractors at the base of the hill. It was pumped to an elevated tank of sufficient height above the reservoir construction to insure an ample supply. All vertical and horizontal joints were keyed and in addition 6-inch and 10-inch wide 22-gauge Armco plates were used in all joints to insure water tightness. Before joining new concrete in concrete previously placed, the old concrete was chipped back one-half inch from the face to insure bond.

The lumber used for all form work totaled 225,000 feet board measure. The wall and roof forms were built in panels which insured quick erecting and wrecking. The wall forms were 4 feet 6 inches wide and 20 feet long. The roof forms were 4 feet wide and 6 to 8 feet long. Column forms were of steel. Kosmos Portland cement, tested according to specifications of the American Society for Testing Materials, was used. In all, 22,270 barrels were hauled to the reservoir site from the cement mill at Kosmosdale, Ky., a distance of about 8 miles. Reinforcing steel consisted of 1350 tons, $\frac{1}{2}$ -inch to 1-inch in size. Sand and gravel, furnished by the Ohio River Sand & Gravel Company, consisted of material dredged from the Ohio River and thoroughly washed, being hauled in trucks approximately 11 miles to the job.

The gate house, which is an attractive structure of classic design, is built of stone obtained from a quarry at Bowling Green, Ky. It has the appearance of white marble unpolished.

In a test of the reservoir measurements of the elevation service by hook gauge showed the level lowered only $\frac{3}{16}$ -inch in six days.

A 60-inch motor-operated gate valve controls the flow into and out of the reservoir, which is located about 14 miles from the pumping station. At the pumping station is a recording gauge to indicate the depth of water in Cardinal Hill Reservoir. The gate valve at the reservoir is operated from the pumping



Steel Cylinder and Cage Ready for Concreting

station through a remote control device.

As a part of the reservoir project, it is necessary to deliver water to the reservoir from certain large transmission lines already constructed of cast iron. The new piping is of reinforced concrete, 48 inches and 60 inches in diameter, totaling about 7.25 miles long. This pipe was made in the vicinity of the job.

The pipe was tested for leakage in sections of considerable length. All tests showed the pipe to be well within the specifications, the average leakage being a little more than one-quarter of the allowable leakage.

The Chief Engineer and Superintendent of the Louisville Water Company is John Chambers. Plans, specifications and inspection were furnished by Alvord, Burdick & Howson of Chicago, Ill. The pipe line was built by Lock Joint Pipe Company of Ampere, N. J. The contractors on the reservoir proper were three Louisville firms who took the contract jointly. They were: Henry Bickel Company, Geo. M. Eady Company, Cannell-Conrad Construction Company.

The reservoir was formally opened and accepted by the city recently. This addition to the existing water system of Louisville, removed the fear of low pressures in the South End and eliminated fire hazards in time of drought.

Gate House of the Cardinal Hill Reservoir



Water Works Construction

Water works improvements aggregating \$500,000,000 are estimated to be needed throughout the country for the expansion of existing facilities and construction of new systems. Since the serious drought of 1930, many Southern cities have concentrated on the development of adequate water storage and distributing plants.

Perhaps the most outstanding program now under way is that of Baltimore, which is going forward with the building of a \$2,500,000 secondary storage dam, a \$1,300,000 tunnel connecting two storage reservoirs, and allied improvements.

Frederick, Md., completed a 2,000,000-gallon water filtration plant. Hattiesburg, Miss., rounded out a 3,000,000-gallon water system. Memphis, Tenn., is erecting a \$2,000,000 pumping station. Mobile, Ala., last year completed waterworks improvements involving an expenditure of \$600,000. The City of Paducah, Ky., acquired the water plant and distributing facilities in 1930, and has completely renovated and modernized the system, which now represents an investment of over \$2,250,000. A waterworks pumping and filtration plant at Shreveport, La., completed in 1931, represents a cost of \$500,000. At a cost of \$900,000 Cumberland, Md., has built an additional dam and extended its water system.

At a cost of \$12,000,000 St. Louis has provided 50,000,000 gallons of water daily by the erection of the Howard Bend Station on the Missouri River. Kansas City, Mo., since 1931 has gone forward with a \$1,000,000 water mains extension program.

Fort Worth, Texas, has pushed work during the past two years on a project known as Tarrant County Water Control and Improvement District No. 1, including two large storage dams for water supply and to provide irrigating basins for flood waters of Trinity River in vicinity of the river, involving an expenditure of upwards of \$5,000,000.

PIPE LINES

VS.

BREAD LINES

By

Ralph R. Silver

NO city or town should overlook the advantages of constructing revenue-producing public works this fall and winter. The importance of such construction is emphasized by the recent Congressional action authorizing special financial assistance from the Federal Government for public works of this character.

Stripped of technicalities and political oratory what business needs now is a way to give idle men jobs without increasing taxes. Revenue-producing public works solve at least part of the problem. In many localities, it may resolve itself this winter into a question of "Pipe Lines or Bread Lines."

Leaders of business, industry and commerce agree generally that the depression is really over. Constructive public measures now in operation and in prospect, are looked to as means of bettering conditions. But these governmental measures need the support of business and civic interests. Moreover, there can not be enough improvement to escape a serious unemployment situation this winter. Therefore, extra measures are needed, such as construction of revenue-

producing public works, that will put thousands of men to work from one end of the country to the other.

The chief revenue-producing activity of hundreds of towns and cities is the water-works department. Practically all other municipal activities require financing out of the tax-payers pocket. Water-works improvements support themselves—new customers, reduced pumping costs, reduced fire insurance rates, all combine to repay not only the original costs of construction but over a period of time actually show an operating profit.

Exhaustive surveys indicate that there are many millions of dollars worth of water-works construction needed. Much of it is already planned, the rest contemplated for the not distant future. City officials everywhere are planning to do this work this fall and winter to relieve their local unemployment situation—to substitute "Pipe Lines for Bread Lines."

It is interesting to note some of the following facts:

The average cost of a ton of cast iron pipe delivered is now about \$40, of which \$25 go directly to workmen engaged in its manufacture, distribution, and installation.

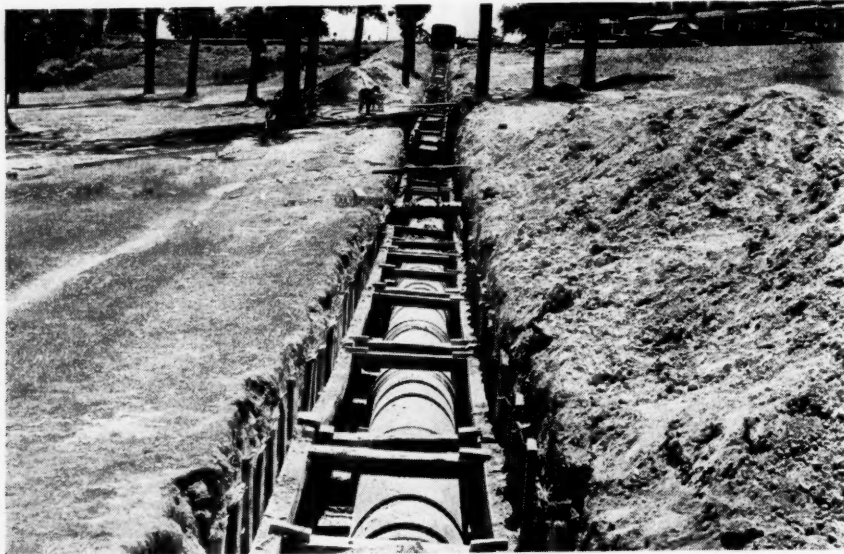
Installation of a mile of 6-inch cast iron water mains gives 1,000 men employment for one day, on an average.

For every 100 tons of cast iron pipe made, the transportation agencies handle approximately 1,050 tons of material

If pipe line construction were carried on in normal volume, approximately 140,000 workmen now idle would be given employment *EVERY DAY OF THE YEAR*, in addition to those already employed.

Water works superintendents, city officials and local bankers hold a key position in the present unemployment crisis.

Installing a 36-Inch Water Main



Southern Cast Iron Pipe for Export

Pipe from the Birmingham District being loaded into ships at State Docks, Mobile, for use on the Pacific Coast and in the Orient

because by concerted, well-planned action they can do much to relieve local conditions without increasing their taxes. Most localities have sections where water main extensions are needed, where such extensions would be made later anyhow. The thing is to do it now. If the water works superintendent would outline his situation in this respect, the city officials and local bankers will find a way to finance the work.

It is estimated that \$500,000,000 is needed for expansion of existing water works and construction of new systems. A recent survey by the Cast Iron Pipe Research Association shows that over 50 per cent of the 3165 towns and cities of 2500 population and over need water works improvements.

Federal aid amounting to \$1,500,000,000 is available. In addition, tax exempt municipal bonds probably will be more attractive to bond buyers on account of the increased income tax rates. The outlook for the bond market improvement in this respect is encouraging.

Then too, from the standpoint of civic pride, local capital can be interested in taking local bonds in a situation of this kind, if the full significance of the work they are to finance is explained to them. They are vitally interested in relieving unemployment and helping revival of business, especially when it can be done without increase in taxation.

In addition to main extensions, other water main work that will pay for itself includes tying together dead ends of mains, which decreases pumping costs. Pumping costs in other instances may be reduced by installation of a second trunk main to reinforce existing lines. This also frequently reduces fire insurance rates, making the reinforcing main not only pay its own installation costs but show a profit.

PIPE LINES instead of *BREAD LINES* is more than a catch phrase.

FARM FINANCING

Plan Followed by a Georgia Bank Has Proved That Safe Banking and Sound Farming Go Hand in Hand

By

John M. Graham

President, The National City Bank of Rome, Rome, Ga.

THE plan under which our Bank finances farmers has been in successful operation for several years. It has proved of benefit to the entire state. The farming principle which we advocate is not new. Henry W. Grady eloquently proclaimed it 45 years ago in his memorable address "King Cotton." What appears to have been new in our plan was the tying up of bank credit extended to farmers who practiced Grady's agricultural principles outlined herewith and for decades, preached by agricultural agencies.

The inception of our plan goes back to the spring of 1921 when conditions made but little credit available for the farmer. We observed that the farmer who could continue operations was the one who had his crib filled with corn, his loft with hay, and had meat in his smokehouse. This gave us the idea that led to a survey of farmers' accounts carried with our Bank. This survey showed that our worth-while farmer customers were those who, year in and year out, grew the feed and food crops needed for consumption on their farms. We decided that in future we would not be interested in financing any farmer whose program was not of that kind. A loan might be well secured when made in the spring of the year, but we do not want to make it if in our judgment the proceeds are to be used in a way that will cause us to realize on the collateral pledged. We are convinced that sooner

or later a farmer "goes broke" whose program calls for all cotton, or all any other crop—to the exclusion of those crops needed for consumption on his own farm.

And so before the crops were pitched in the spring of 1921, we gave notice by means of a half page advertisement in our local paper, headed "A Plain Statement." That statement outlined terms on which we would lend money to farmers and included this paragraph:

"We expect to extend credit to those farmers who are careful to grow ample food and feed crops to meet the needs of their farms."

Each year since 1921 we have repeated the publication of our "A Plain Statement."

We expected, and experienced, some resentment from farmers, until we made it clear to them that we were not in any way attempting to tell them how to farm; that we had no comment to make upon their farming methods whatever—that is, unless they wanted to use our money. In that event we had the same right to approve or disapprove their farming methods that we had to approve or disapprove the business management of a merchant or manufacturer borrower. We made it clear to the farmer that it was our business to lend money, but it was also our business to lend it to a good risk, and that a farmer who couldn't cut down his overhead by supplying his own needs where possible,

"When every farmer in the South shall eat bread from his own fields and meat from his own pastures, and disturbed by no creditor and enslaved by no debt, shall sit among his teeming gardens and orchards and vineyards and dairies and barnyards, pitching his crops in his own wisdom and growing them in independence, making cotton his clean surplus and selling it in his own time and in his own chosen market and not at a master's bidding, getting his pay in cash and not in receipted mortgages that discharge his debts, but do not restore his freedom—then shall be breaking the fullness of our day."—HENRY W. GRADY.

getting his farm on a business-like basis, was not a good risk.

In doing this it was not our idea to restrict credit to farmers, but properly to direct credit to them. It was, and is, our purpose to convert our borrowing farmer customers into depositing farmer customers. We have endeavored in many ways to show our sincere interest in the farmers' welfare, and we have succeeded in convincing them that our



John M. Graham

interests are mutual and that in our dealings with them we will be more than fair in our efforts to place them on a sustaining and profitable farming basis.

Approval of our plan by many other institutions, agencies and the press, as well as our own experience, makes us believe such plan is sound and practical.

The Georgia Bankers Association, at the time I became its president in 1929, actively promoted the movement among bankers of the state. The Agricultural Committee of the association divided the state geographically to coincide with divisions previously adopted by the State College. There was a Banker Chairman for each 10 counties in the state, who were actively at work convincing bankers that properly directed farm credit was the solution from the agricultural standpoint. All of this work was done in cooperation with the Georgia State College of Agriculture. I believe the success of the movement may be largely attributed to the publicity given to it by the press.

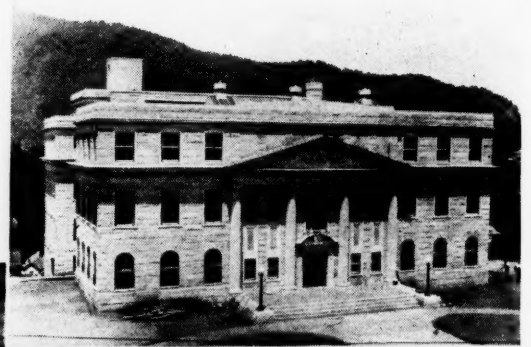
As evidence of the results achieved, the State of Georgia in 1930 and again in 1931 won first place among the 48 states for its Banker-Farmer activities in the award made by the American Bankers Association.

A severe test has come during the past two and a half years and the plan has been tried and not found wanting. I do not mean to say that farmers in the trade area served by our Bank are prosperous, because these are not prosperous times, but through the plan we have worked on for years, these farmers can feed themselves and their work stock; they are as a class far better off than the industrial workers of the cities. The plan has proved that safe banking and sound farming go hand in hand, and this County is said to rank highest in the United States in repaid Federal Farm loans.

NEW BUILDINGS FOR THE



Haywood County Courthouse at Waynesville, N. C.,
Illustrates Substantial Type of Public Structures Being
Erected in the South



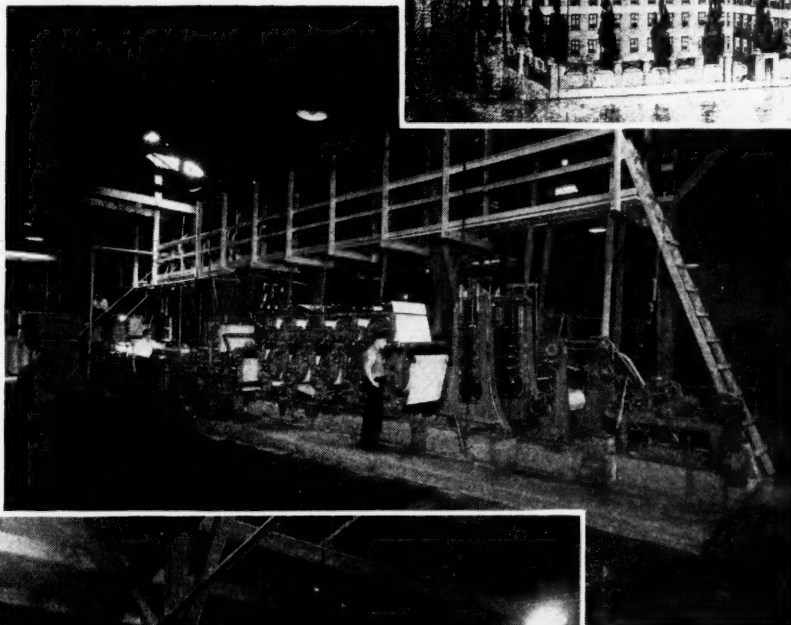
Louisiana's
\$5,000,000
Skyscraper
Capitol
Adds to
South's
Notable
Buildings



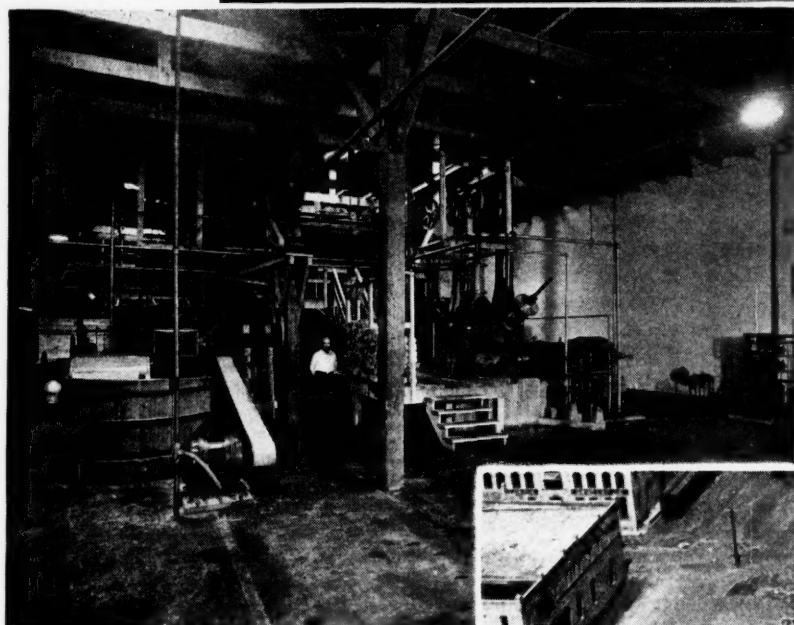
Interior and Exterior
Views of Modern Bank-
ing Building at Rich-
mond for the Morris
Plan Bank of Virginia

AND INDUSTRIES
SOUTHC.,
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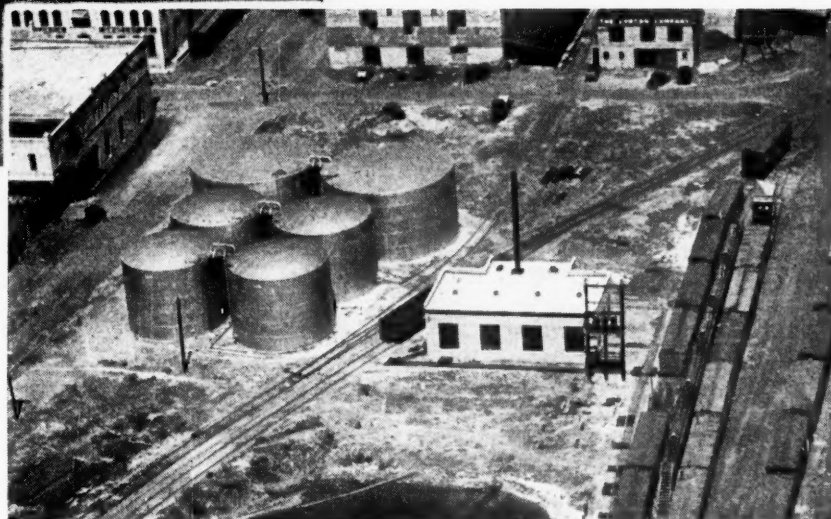
Birth of a
New Industry
Is Predicted
for This
Experimental
Plant at
Savannah, Ga.,
Which Makes
Paper From
Southern Pines



\$1,500,000 Hospital to be
Erected in Baltimore by
the University of Mary-
land Medical School.
Plans Are Being Prepared
by the Office of Joseph
Evans Sperry and Smith
& May, of Baltimore



New Oil Handling Facilities at
Pensacola, Fla., for the Louisville
& Nashville Railroad Co. Includes
Steel Storage Tanks of 2,000,000
Gallons Total Capacity, Pumping
Plant, Loading Racks and Pipe
Lines



\$1,500,000,000 OF CONSTRUCTION AWAITS FINANCING

By
Charles F. Abbott

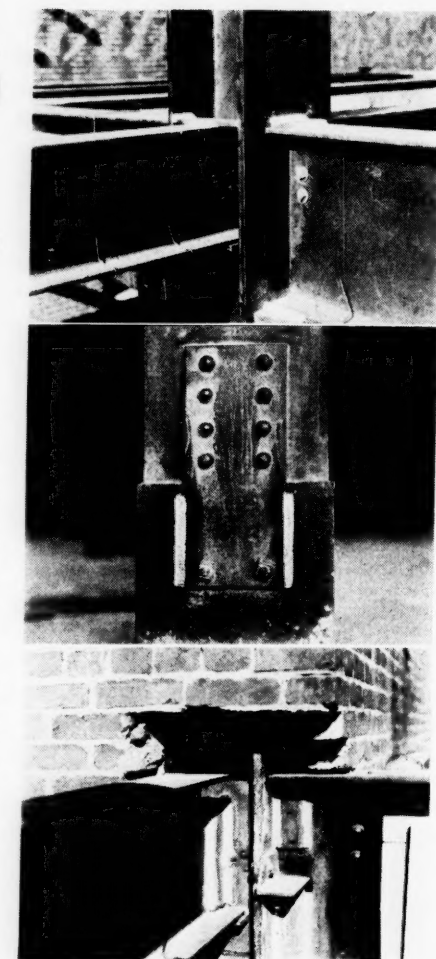
Executive Director, American Institute of Steel
Construction, Inc.
New York City

WE recently made a survey of the construction projects which can be started this fall and winter. They will probably require something like a billion and a half dollars to finance them. Practically all of them are greatly needed, like the trans-Mississippi Bridge at New Orleans for which the plans have been drawn and bids taken. The very fact that Federal money is ready to finance or help finance these projects will effectually break the deadlock and bring out private capital. I venture to say that we will thus be able to put back to work some million men before next spring. That, at least, seems assured if we are able to make full use of the credit facilities provided us by Congress.

Of course steel is not the only material required in these projects, but the undertakings are sufficiently important to have a radical effect upon the steel construction industry. As a matter of fact, I confidently believe that the steel construction industry will within the next 12 months lead the steel industry at large back into production and aid greatly in the restoration of a measure of prosperity to the steel mills.

The most pessimistic and practical of steelmasters will acknowledge that the steel trend should be upward. That is a comparatively easy prophesy to make for the backlog of orders, as revealed by the first of August report, was never smaller, and sales during the first half of 1932 represent a new low for the industry.

This situation is due directly to the depressed state of agriculture, the railroads and of the automobile industry. When liquidation has run its course in those fields of endeavor then the steel industry may confidently expect a turn for the better. The current statistics of



Electric Welding Features Structural Steel Erection Job on 50,000 Square Feet Floor Space Addition to Hutzler Bros. Modern Department Store at Baltimore.

steel production in the United States disclose with a fair degree of accuracy what has happened. This condition, however, is not peculiar to the United States but the depressed state of steel has been world-wide. And when an industry slumps down to the lowest possible point we may safely say that from this point on the turn is upon us.

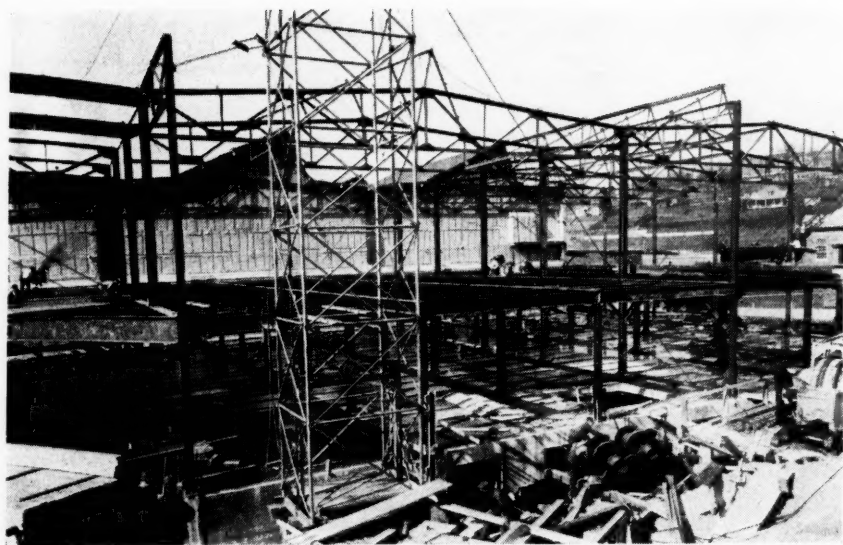
The slight increase in demand felt this summer was due to the scarcity of supplies rather than any appreciable increase in consumption. At last the current demand has caught up with the current production. This has resulted very largely from the fact that steel mills and plants have been deflated and their personnel is skeletonized. With but a slight

turn in orders, provided this deflated overhead of the industry is not changed, the industry should be in a position to profit from increased operations. I cannot speak for the whole industry, but I am convinced that this is true in the steel construction industry, which is the only branch of the steel industry that has been going forward with any degree of activity.

When the World War closed we were far behind in our requirements for housing, because artificial restrictions had been imposed on all but essential war-time activities. As a consequence during the ten years following we were feverishly endeavoring to catch up in office buildings, factories, bridges and other structures which are essential to the normal upturn in business. The peak of steel construction was reached in 1929, and the large orders in hand tended to carry the industry on into 1930 despite the stock-market crash of the October before. In 1931 some of the larger consumers of steel construction placed large orders because they were convinced that the low point of prices had been reached, and that would be a good time to start building even though they had no immediate tenants for their structures or users for their facilities. Those orders were spectacular but they did not halt the gradual decline in total business.

During 1932 the sales of steel construction have been approximately but 20 per cent of the average volume for the three years previous. This is not at all surprising because the heavy liquidation throughout all business has very naturally resulted in a demand for liquidation of realty holdings. Present holdings, typified in office buildings on the one hand and in toll bridges on the other, being financed upon a basis of costs prevailing prior to 1930, are an effective backlog to any movement to create new facilities at much lower costs and at smaller rates of return.

Under the circumstances it is essential that the construction industries look to public and semi-public work to tide them over the present low point of the industry. The Wagner act, which was put upon the statute books in July now offers a means of initiating a large number of new construction projects. There are essential public works in every state and city in the country. In addition, there are a number of self-liquidating projects which would go forward if the financing could be found. Private capital would not finance them because the lower costs would imperil the investments already made in high-cost projects. The Reconstruction Finance Corporation can and probably will finance them, or at least a large proportion of them until the turn in business once more exerts itself and the urgency of liquidation no longer confronts investors.



Steel in North Carolina Factory Construction

Steel Penstock for
Texas Power Project

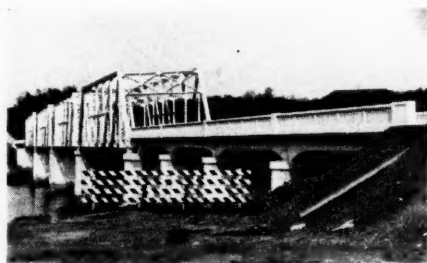


USE OF STEEL IN SOUTHERN CONSTRUCTION

Dredge Built of Alabama Steel at Mobile
Plant of The Ingalls Iron Works Co.



New Broad River (S. C.) Bridge



East St. Louis Union Station Approach
Required More Than 6700 Tons of Steel



\$112,000,000 CONSTRUCTION AWARDS TO BE LET IN SOUTH

FOLLOWING successive increases in the valuation of construction, engineering and building awards in the sixteen Southern states during each of the past three months, August awards, based on a compilation of reports published in the MANUFACTURERS RECORD DAILY CONSTRUCTION BULLETIN show a recession to \$40,976,000, compared with July awards of \$45,899,000. On the other hand, contracts to be awarded set a new high record of \$112,175,000, the highest monthly total since the building boom of 1929, and indicating a big volume of work in prospect.

The aggregate valuation of awards covering all classes of buildings, general construction and engineering work, in the Southern states in the first eight months of this year, exceeds \$254,545,000. By including numerous small projects for which contracts were let last month, but which were not reported due to space limitations, the total would, it is conservatively estimated, be brought to well over \$340,000,000.

Awards for municipal, county, State and Federal construction and building work, which has figured so prominently in the year's activity to date, declined sharply last month, with the exception of road, paving and bridge operations. On the other hand, there were noteworthy increases in other classes of construction in the South. The high figure rolled up in July was swelled by the award of contracts for two large government structures at Washington, and this accounted for the high total for the seventh month of the year.

Road, paving and bridge construction is represented by awards aggregating \$16,504,000, the highest monthly total for this classification in 1932. Although the work shows a recession throughout the country generally, due to lack of funds with which to finance programs, the South has been particularly fortunate in having had available in the first part of 1932 funds from bonds issued by counties, parishes, districts, towns, cities and states, to carry forward road maintenance and new construction programs. Last month awards were made in anticipation of the availability of Federal employment relief funds for highway construction.

Judging from the big total of \$51,000,000, representing contracts to be awarded for this character of work, in August, during the fall contracts will be

Construction Activity for August, 1932

	Contracts Awarded	Contracts to be Awarded
Apartment Houses and Hotels	\$170,000	\$405,000
Association and fraternal	39,000	82,000
Bank and office buildings	213,000	315,000
Church buildings	538,000	606,000
City, county, government and state projects	7,834,000	26,861,000
Dwellings, costing \$10,000 and over	1,001,000	1,163,000
Roads, paving and bridges	16,504,000	51,094,000
School buildings	2,323,000	4,074,000
Sewers, drainage and waterworks	494,000	4,810,000
Store buildings	652,000	345,000
Miscellaneous	11,188,000	22,420,000
Total, August	\$40,976,000	\$112,175,000
July	\$45,899,000	\$71,530,000
June	43,568,000	67,886,000
May	35,108,000	45,800,000
April	26,024,000	50,457,000
March	27,079,000	61,910,000
February	17,604,000	60,234,000
January	18,287,000	39,020,000
Total for 8 months	\$254,545,000	\$509,012,000

let for an unprecedented volume of paving and road work. For instance, Texas proposes to award at two lettings on September 18 and 19 and on a third day yet to be selected, contracts for road and bridge work involving an expenditure of \$10,000,000. This typifies the activities in the Southern states generally in this line of work, and lettings involving \$1,000,000 to \$3,000,000 in a single day are now common.

In addition to the volume of work represented at present price levels for labor and materials, the Southern states are maintaining existing highway systems on a scale never before practiced, thereby assisting unemployment relief and for utilizing quantities of locally produced materials. As a direct result of the enlarged programs, a growing demand has developed for materials, machinery and equipment. At least two Southern states, North Carolina and Virginia, have enlarged their state highway systems to include the maintenance of county roads, so that there has been created an additional market for materials and modern tools.

In line with the better feeling noted in business generally, there was a sharp increase in awards last month for new church and Sunday school buildings and for improvements to existing edifices. Moreover, there are indications that the awards last month represent more than a sudden spurt in construction of this class, for contracts to be awarded in

August for churches totaled \$606,000.

The building of new public school structures, parochial schools, colleges and universities went forward last month with renewed impetus, with awards of \$2,323,000 compared with the preceding months: total for similar projects of \$964,000. The August figure of \$4,074,000, value of new structures contemplated, also gives evidence of a continuation of such work in volume, since in July contracts to be awarded for school buildings aggregated \$3,047,000.

The value of awards for miscellaneous construction and engineering projects last month was \$11,188,000, compared with the high total recorded in July of \$18,122,000, which included many contracts for public construction projects let early in the new fiscal year, which began July 1. There is in sight a large volume of work of this class, since contracts to be awarded in August aggregated \$22,420,000 and \$16,802,000 in July. This classification includes a diversity of activities in widely scattered areas not properly designated by the other headings in the summary appended. Major awards under this classification during July and August provided for the construction of new levees and the enlargement of existing levees, the building of revetments and contraction works, the dredging of new channels and the construction of elaborate systems of dikes along the Mississippi River and its tributaries. Elsewhere in this issue are detailed accomplishments in three Engineer Corps Districts along the river during the past fiscal year, together with a summarization of the programs outlined for this fiscal year, giving an idea of the wide ramifications of the Flood Control Project calling for the expenditure of \$35,000,000 annually and developing a market for materials in wide variety and an array of standard and special contractor's plant equipment.

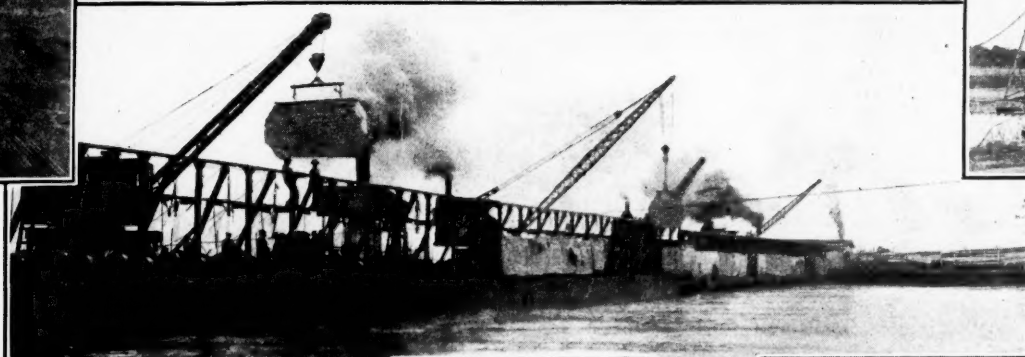
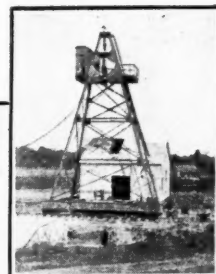
A sign of better business in the South is the award in July and August of contracts totaling \$1,325,000 for new store buildings and modernization and extension of existing structures.

Representative projects let to contract or regarding which preliminary announcements were made last month, include the following: Lexington, Ky., for a \$1,245,000 sewer system; Alexander H. Kerr & Co., Inc., Sand Springs, Okla., begin work on eastern plant at Huntington, W. Va.; The Treasury Department will soon award contracts for \$1,925,000 Federal building in Norfolk; The Charity Hospital of New Orleans will shortly award contracts for an 8-story convalescent home.

The Best Equipment Demands

AMERICAN STEEL & WIRE COMPANY WIRE ROPE

On Mississippi River Levee Work



Construction of the Mississippi River Levee system has called into play practically all known methods of dirt moving, such as draglines, hydraulic dredges, tower machines, etc. On this project all types of equipment are being subjected to gruelling punishment and abnormal operating conditions. And—sharing in this responsibility is American Steel & Wire Company American Wire Rope.

Our wire rope engineers have designed special ropes to fit in with the difficult tasks encountered here. They can help solve your wire rope problems.

1831



1932

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago
94 Grove Street, Worcester

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

Empire State Bldg., New York
First National Bank Bldg., Baltimore

AND ALL PRINCIPAL CITIES

Pacific Coast Distributors:
Columbia Steel Company, Russ Building, San Francisco

Export Distributors:
United States Steel Products Company, New York



IRON, STEEL AND METAL MARKET

Steel Industry Looks for Improvement in September

Pittsburgh.—[Special]—Steel ingot production in August was at approximately the low July rate but totaled larger as there were two more working days. No improvement of really noticeable proportions was expected for August as both July and August have always been dull months in steel. Furthermore, it is a long standing tradition in steel that when there is recovery from depression it starts in March or in September or October, so that the time is approaching when actual signs of revival could be expected.

The increased steel buying expected is of highly miscellaneous character, from jobbers and manufacturing consumers to replenish stocks, lately down to nothing, from manufacturing consumers of various sorts having increasing business, and from farmers. Some observers suggest that the farmers will lead the procession towards general business recovery.

A little increase in automobile trade requirements is expected. Railroad buying in much volume and fabricated structural steel orders will hardly increase materially in the next few months. Structural steel shipments have been at a fair rate, averaging higher in the last three months than in the first five months of the year. R. F. C. loans would not involve steel deliveries until months after they were made.

Some weakening occurred in steel prices during August, sheets slipped a couple dollars a ton but leading mills have hopes that old prices will be promptly restored. A new pricing system in standard pipe was announced as of September 1, card discounts being increased while the preferentials or trimmings of the long standing system were abolished. Evidently prices had weakened during August by preferentials being increased.

Improvement in steel is predicated upon three considerations, seasonal, improvement in trade generally, and the phenomenally low level to which demand had fallen, claimed to be far below the going requirements of the country. Steel production was at a lower rate than had ever obtained since wrought iron constituted an important part of total demand and thus a long range illuminating comparison is impossible with steel. Total production of pig iron and ferroalloys for the first half of the year was

5,229,639 gross tons, the smallest since the first half of 1897, and smaller than in the second half of 1895, when a short boom broke the monotony of the depression of the eighteen-nineties. Meanwhile an enormous amount of iron and steel has been put into service, requiring upkeep or replacement.

Increased Production

Birmingham.—[Special]—The better feeling that developed in August in general business conditions brought a turn in actual happenings which have been received with much encouragement.

Eight open hearth furnaces were brought into service during August, the steel making pace of the district, based on ingot production being increased to 25 per cent as against 19 and 21 per cent noted for weeks back. New business is being received in the lines required in the agricultural sections. Stove foundries, following the advances in cotton, felt a smart upward trend in demand, and operating schedules speeded up to three days a week, with some Southern foundries producing full time. There was renewed demand for Webb cotton presses. There has been a broader demand for wire and wire products, roofing, sheets, and other shapes of steel. Cotton ties, produced by more than one concern in the Birmingham district, have been moving in quantity.

Coal production, which was down to the minimum, started a gradual climb and the past month closed with prospects of greater demand, seasonal and otherwise. Transportation companies have felt improvement in tonnage.

Pig iron production is low with one blast furnace operating at Woodward and one at Fairfield, giving opportunity to reduce surplus stocks. Another 30 days will elapse before an increased production is anticipated.

Birmingham-Goslin Manufacturing Co. has received contract for eight-foot diameter cast iron pipe for water works system in Pasadena, Calif. Hardie-Tynes Manufacturing Company has received additional machinery contracts from the far West and is building up a splendid back log for the machine shops, the four Helium gas compressors being built setting a pace.

The new month will see accentuation of the start made the latter part of August. While no definite information is given out, expectations are that spe-

cifications on rail and accessory requirements will be received from railroads and plans will be made during the month for resumption in early Fall of operations at the Ensley Works of the Tennessee Coal, Iron & Railroad Co., the rail making division.

Republic Steel Corporation will keep 40 of its ovens at the by-product coke works in operation so as to accord two days a week work to several hundred employees at the Sayreton coal mines.

Non-Ferrous Metal Prices and Sales Increase

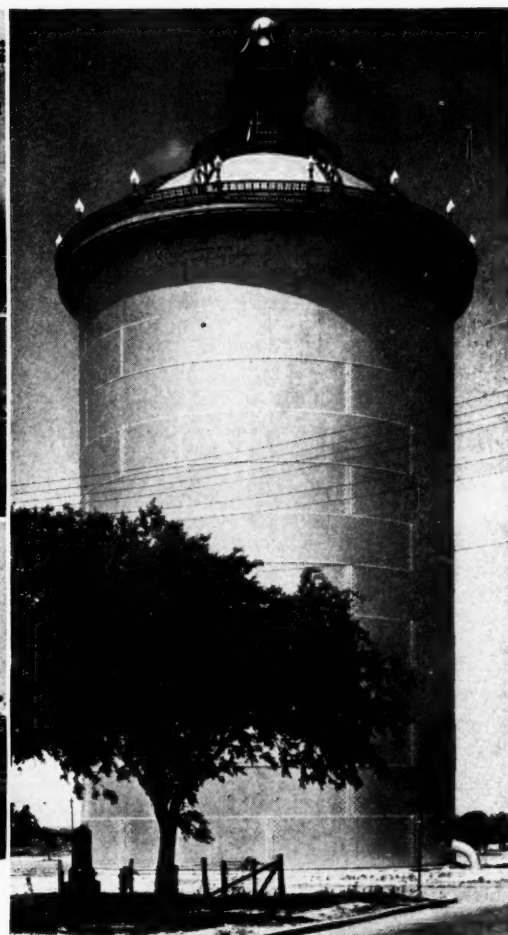
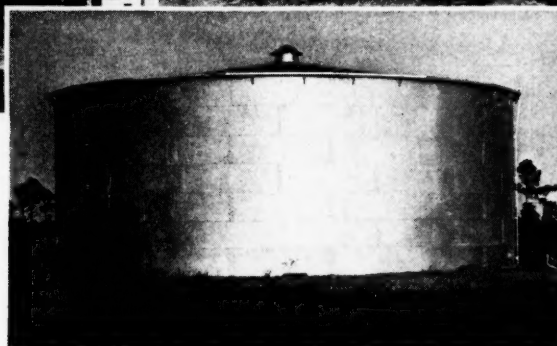
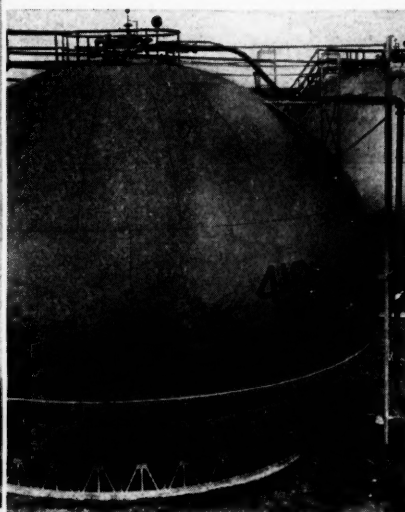
New York.—[Special]—August saw substantial recovery in non-ferrous metal prices, the markets showing the greatest burst of strength so far this year. Low points for the year, century or for modern history had been reached in July. Since these bottom points were reached lead has risen \$19 per ton; copper is up $\frac{3}{4}$ c per pound in the home market and $1\frac{1}{2}$ c abroad; tin has advanced 3c per pound; silver is 2c per ounce higher than the long-established level of winter, spring and early summer; zinc is but a trifle higher than its July level, having reached its low point earlier in the year.

The boom in the metals took place late in August and with the higher prices came much better volume of sales. Much of the purchasing was of a speculative nature. In other words consumers were not buying for needs in sight but because prices appeared cheap. At the same time there were evidences of better consumption among some of the metals. Copper shipments to Europe have been improving over the early part of the year.

The statistical position of the metals was generally improving last month. Surplus stocks of lead and tin were declining; the zinc surplus was about holding its own. Copper stocks on the other hand are still increasing, though it is believed that the time is about near when a change will take place in the trend.

The metals were undoubtedly helped by the better sentiment generally which caused prices of securities and most commodities to continue to rise. The composite price of commodities generally has shown a gradually rising movement since late May, with here and there minor reactions. The metals followed, rather than led, other commodities in their advances.

TENNESSEE STEEL



for TANKS HIGH and LOW

SURFACE tanks, elevated tanks, standpipes—wherever a tank is to be built, and whatever is to be its use or capacity, the choice of proper material and the sound application of design and workmanship are alike indispensable. Satisfactory to the eye and serviceable for the purposes of the owners, the tanks here illustrated are examples of a very wide range of types in which Tennessee Plates and Shapes are being used. Write for full information.



TENNESSEE COAL, IRON & RAILROAD COMPANY

General Offices: Brown-Marx Building, Birmingham, Ala.

Subsidiary of United States Steel Corporation

AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY

PRINCIPAL SUBSIDIARY
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPBUILDING AND DRY DOCK COMPANY

MANUFACTURING COMPANIES
ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY

OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & R. R. COMPANY
UNIVERSAL ATLAS CEMENT COMPANY

Pacific Coast Distributors—Columbia Steel Company, Ross Building, San Francisco, Calif.

Export Distributors—United States Steel Products Company, 30 Church Street, New York, N. Y.

GOOD ROADS AND MOTOR TRANSPORT

Highway Building Congress and Show

The annual convention of the American Road Builders' Association in conjunction with ten other national organizations representing every branch of the highway building industry will be incorporated in the Highway and Building Congress in Detroit during the week of January 16, 1933. The purpose of the Congress, consisting of highway officials and engineers, contractors, manufacturers, architects, bonding companies, bankers and civic organizations, is to devise a coordinated program of future activities that will lead to the immediate improvement in national economic affairs as related to highways and building.

Organizations participating are: Construction League of the United States, American Road Builders' Association, Associated General Contractors of America, Truck Association Executives of America, The Asphalt Institute, National Crushed Stone Association, National Paving Brick Association, National Ready Mixed Concrete Association, National Sand and Gravel Association, and the Portland Cement Association.

There will be an exhibition of highway and building materials and equipment sponsored by the American Road Builders' Association at the Detroit Municipal Airport. The exhibits will include all types of materials and equipment used in building and highway work. During the past year many new products have been developed in connection with highways.

One of the outstanding results of the Congress is expected to be the development of a program of education designed to acquaint the public with the contribution of the construction industry to sustained national equilibrium. It will define the place of highway and other forms of construction in respect to improved transportation, industry, agriculture, education, and all other phases of national life.

On the first three days the participating organizations will hold their regular convention programs separately. On the fourth day a combined program will feature highway construction—its strategic position in the progress of the Nation, its relation to the economic and social life of every individual—its vital importance to education and industry—its benefits to agriculture—its significance

in our transportation system—and its relation to the taxpayer.

The fifth day will be devoted to a program on building. Future problems of the building industry will be discussed. This session is designed to be of particular interest to architects, contractors, bonding companies, bankers and material supply men.

New Road Roller

The Buffalo-Springfield Roller Co., Springfield, Ohio, has added to its line a 1½-2 ton 4-cylinder gasoline tandem roller adaptable to the rolling requirements of small paving jobs, polo grounds, golf courses, and athletic fields. Having a short wheel base, it is capable of following irregular courses, operating ease and maneuverability being outstanding features.

The operator, seated over the rear roll, has all controls within easy reach. A hand lever at his right controls the back and forward motions of the roller; foot pedals operate the clutch and the brake. The brake, mounted on the front end of the drive shaft, is highly effective. The main frame is of channel steel and boiler plate. All gears are steel. The speed gears, cut from solid blanks, run in an oil bath. The main gear on the rear roll is placed several inches above the surface of the ground to prevent wear by dirt and loose surface materials. The drive roll, which is of welded construction, is so designed that it may be filled with water if additional compression is required. For use in rolling hot materials a large water tank and sprinkler system are supplied for attachment to the roller.

\$14,500,000 Bridge for New Orleans

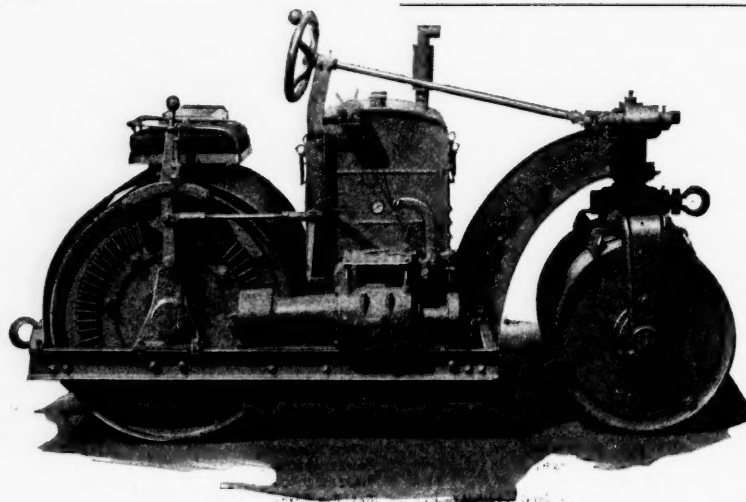
Promoters Hope to Start Work Soon on
Combination Vehicular and Rail Bridge
Over Mississippi River

New Orleans, La.—Funds for the building of the Public Belt bridge across the Mississippi River here will be made available by the Reconstruction Finance Corporation as soon as necessary legal details can be completed, Mayor T. Semmes Walmsley announces.

Construction of this combination railroad, pedestrian and vehicular bridge should start before the end of next month, in the opinion of Mayor Walmsley.

Engineers estimate that this project will give employment to about 6500 men over a period of at least two years and that this work will be scattered all over the country from the steel mills to actual foundation and construction work in New Orleans. The project involves approximately \$14,500,000.

"Quite aside from the speedy and more economical entrance of the freight and passenger business of the west bank railroads, the time which will be saved by individuals and business interests who enter New Orleans by automobile from the west will be a most important factor in the upbuilding of the city on both banks of the river," R. S. Hecht, president of the Hibernia Bank and Trust Company declared. Mr. Hecht acted as the agent for the City and State in handling the application before the Reconstruction Finance Committee.



Gasoline Powered Light Weight Tandem Roller

MANUFACTURERS' RECORD FOR

At a fuel cost of

19^c an hour!

THE "Caterpillar" Diesel Tractor displays a puny appetite for low-cost fuel — on the job here pictured it is taking the elevating grader at second speed on 3.8 gallons of furnace oil hourly — fuel bought for five cents a gallon! Casting-in a huge daily yardage of black Nebraska gumbo — this tractor's fuel is costing just \$1.90 per 10-hour day!

From Belgium — from the Mississippi levees — from Hawaii and elsewhere — come owner reports of "Caterpillar" Diesel economy just as startling. And coupled with this economy is amazing smoothness of performance — rugged simplicity — ease of operation — new achievements in Diesel design.



Caterpillar Tractor Co., Peoria, Ill., U.S.A.
Track-type Tractors Combines
Road Machinery

(There's a "Caterpillar" Dealer Near You)

Prices — f. o. b. Peoria, Illinois

FIFTEEN . . .	\$1100	THIRTY-FIVE .	\$2400
TWENTY . . .	\$1450	FIFTY . . .	\$3675
TWENTY-FIVE	\$1900	SIXTY-FIVE . .	\$4350
DIESEL	\$6500		

CATERPILLAR
REG. U. S. PAT. OFF.
TRACTOR



Fleet of Model 85 Indiana trucks for highway building and maintenance recently purchased by the Board of Administration, Montgomery, Ala., from the White Company, distributors.

5400-Gallon Tank Truck

A 5400-gallon frameless semi-trailer operated on the Atlantic seaboard by the Standard Oil Company of New Jersey probably is the country's largest gasoline hauling vehicle. It is one of a pair built by the Columbian Steel Tank Company, Kansas City, Mo., with the idea of giving maximum gallonage under state highway statutes limiting



For Hauling Gasoline

the total weight of any one vehicle to 60,000 pounds. Overall length of the outfit is 36 feet.

Weights on the tank are divided as follows:

	Pounds
Tank, including hose tubes, tunnel outlets, valves, etc.	8,950
Special AK Mack tractor, 155 in. w.b.	12,000
Fifth wheel assembly	770
Landing gear assembly	330
Rear axle assembly, tandem type	4,950
Pay load, 5400 gallons of gasoline	33,000

Total weight 60,000

The tank has nine compartments, each holding 600 gallons. It has a tunnel manifold with two four-inch outlets. Two master control operators located at rear in an inset in the tank operate the nine compartment valves and also the outlet valves. With all valves open the load may be completely discharged in approximately 30 minutes.

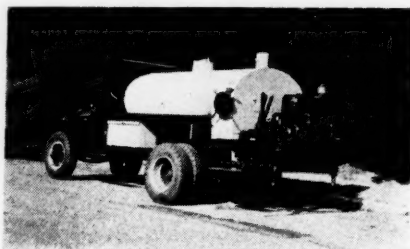
Fourteen pneumatic tires carry this enormous load. At the front are 9:75x24 singles; at the rear 9:75x24 Duals on tandem axles and in the middle are 10:50x24 Dual tires.

The tank itself weighs 1.6 pounds per gallon of gasoline carried. This includes the weight of the integral frame as the tank is built to serve as its own draught member, the usual drop frame being eliminated.

Littleford Pressure Distributor

Littleford Bros., Cincinnati, Ohio, manufacturers of road maintenance equipment, announce the addition of a pressure distributor to their line, an outfit of "unusual operating simplicity and more positive control of application of bitumen." This distributor is available in standard sizes of 500, 600, 800, 1000, 1200 and 1500 gallon capacities, and may be mounted on any suitable truck, trailer or semi-trailer. An important feature is a single valve control. A Viking rotary pump is driven by a 4-cylinder engine, fitted with oil-type air cleaner, radiator guard, completely enclosed heavy-duty friction clutch, and variable speed governor control.

The heating unit consists of one low-pressure (coilless) oil burner, a fuel pump, 40-gallon fuel tank and a ball bearing blower, both pump and blower operating from the distributor engine.



For Applying Bitumen

The burner lights instantly, without pre-heating, it is said, and fuel oil of grades 1, 2 and 3 may be used. The heat chamber encloses pump, valve and manifold lines. Heat from the burner, by means of a flame deflector, may be cut away from the heat flue, permitting all heat to pass into the heat chamber instead of being circulated through the tank. This is to enable the operator to thaw out pump and control valve, assuring quick starting.

Urges Use of American Materials by Road Builders

Road builders holding contracts for highway construction under the emergency fund provided by Congress are urged by Secretary of Agriculture Arthur M. Hyde to use cement and other materials manufactured in this country.

Calling attention to numerous protests that materials manufactured abroad were being used in such projects, the Secretary points out that Congress in passing the emergency appropriations aimed to provide employment in as large a degree as possible, and adds:

"In my opinion, there is a strong, moral implication arising from the emergency character of the appropriations that preference in the materials used should be given to materials produced in this country."

Solving Farm-to-Market Road Problem

How Pennsylvania is solving on a large scale the problem of farm-to-market roads through the improvement of 20,000 miles of township roads by the state will be the subject of an address by S. S. Lewis, Secretary of Highways, at the Tenth Annual Asphalt Paving Conference to be held at New Orleans during the week of December 5.

This type of practical farm relief is demonstrating its feasibility both in magnitude of results accomplished to date and economy of operation—since already 3659 miles of the system have been completed at an average cost of \$5300 per mile.



Fleet of General Motors De Luxe Buses for Operation Between New Orleans and Mariana, Fla., for the Teche Lines, Inc., New Orleans, Serving the Gulf Coast

greater POWER higher SPEED



with
P&H

KEEPING COSTS DOWN on road building is largely a matter of moving more dirt for less money. The California State Highway Commission knows this and knows the best way to be sure of low yardage costs. That's why they have bought a total of 22 P&H Shovels . . . it's why they have just added three more Model 700-B P&H Shovels, whose greater power and greater speed will save money on California's highway programs this year and for years to come.

means

Harnischfeger Corporation • Established in 1884
4427 West National Avenue, Milwaukee, Wisconsin

SHOVELS • DRAGLINES • CRANES
SKIMMER SCOOPS • TRENCH HOES
FULL REVOLVING MODELS $\frac{3}{8}$ to $3\frac{1}{2}$ CU. YD. CAP.

Warehouses and Service Stations:
Boston Memphis Jacksonville Seattle Los Angeles
San Francisco Dallas

GREATER YARDAGE AT LOWER COST

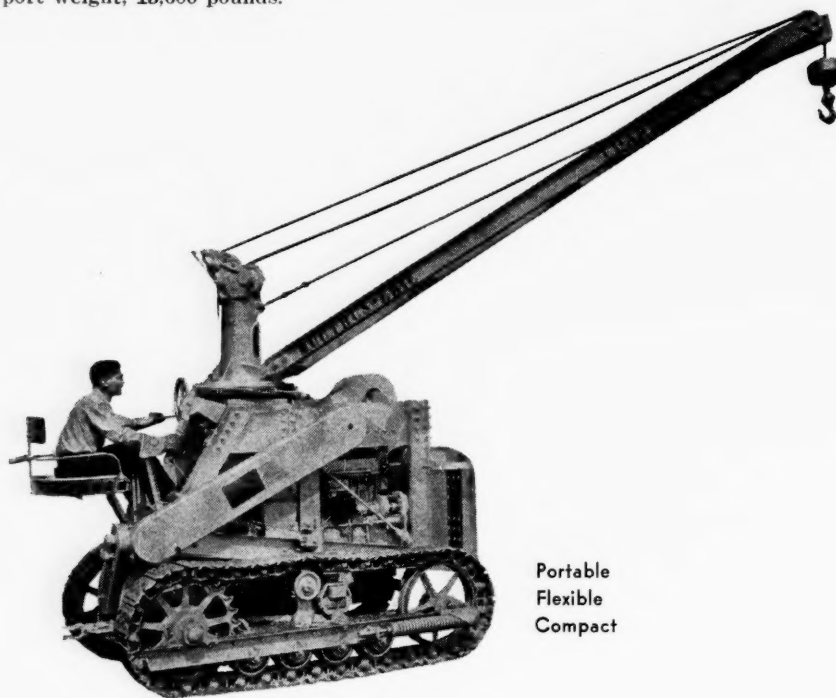
EQUIPMENT

NEW AND IMPROVED

Bucyrus-Erie Loadmaster

To meet a need for portable handling equipment with flexibility, compactness and ability to spot loads quickly, the Bucyrus-Erie Company, South Milwaukee, Wis., recently introduced the Loadmaster, suitable for many applications in the industrial field. The machine is equipped with a full revolving boom and powered by a "Caterpillar" 4 by 5½ engine, made by the Caterpillar Tractor Co., Peoria, Ill., complete with transmission and tracks modified by the Bucyrus-Erie Company. The unit may be used for hauling trailers.

Hoisting and swinging motions are accomplished through controls conveniently located and may be made independently or simultaneously. Power for crane operation is obtained through chain and bevel gear drive, while friction clutches for hoisting and swinging give smooth control and permit the boom to drift for easily spotting loads. An internal expanding brake holds the boom in any radial position. A capacity of 4500 pounds on a single line is obtained through self-locking worm and worm-gear drive. Stabilizers provide a firm four-point support for handling heavy loads, and when released give three-point suspension for fast moving. Standard boom lengths are 10, 12 and 14 feet, although longer booms may be furnished. Domestic shipping weight of the machine is approximately 11,900 pounds and export weight, 13,600 pounds.

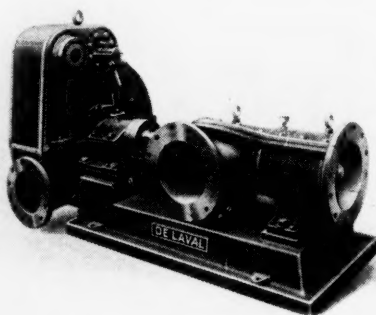


Portable
Flexible
Compact

De Laval Propeller Type Pump

More complete hydrodynamic data have made it possible to build more efficient pumps of the propeller type, according to the De Laval Steam Turbine Company, Trenton, N. J. Such pumps have a wide application in pumping large volumes of water against low heads, as in circulating condenser cooling water, drainage and irrigation, etc. They can be coupled direct to standard speed electric motors and steam turbines, and may be operated at high rotative speeds.

A De Laval propeller pump shown here is built for both horizontal and ver-



Handles Large Volumes Against Low Heads
at High Speeds

tical installation and is available for all capacities and for heads up to about 40 feet. It may be connected direct to a standard speed electric motor or steam

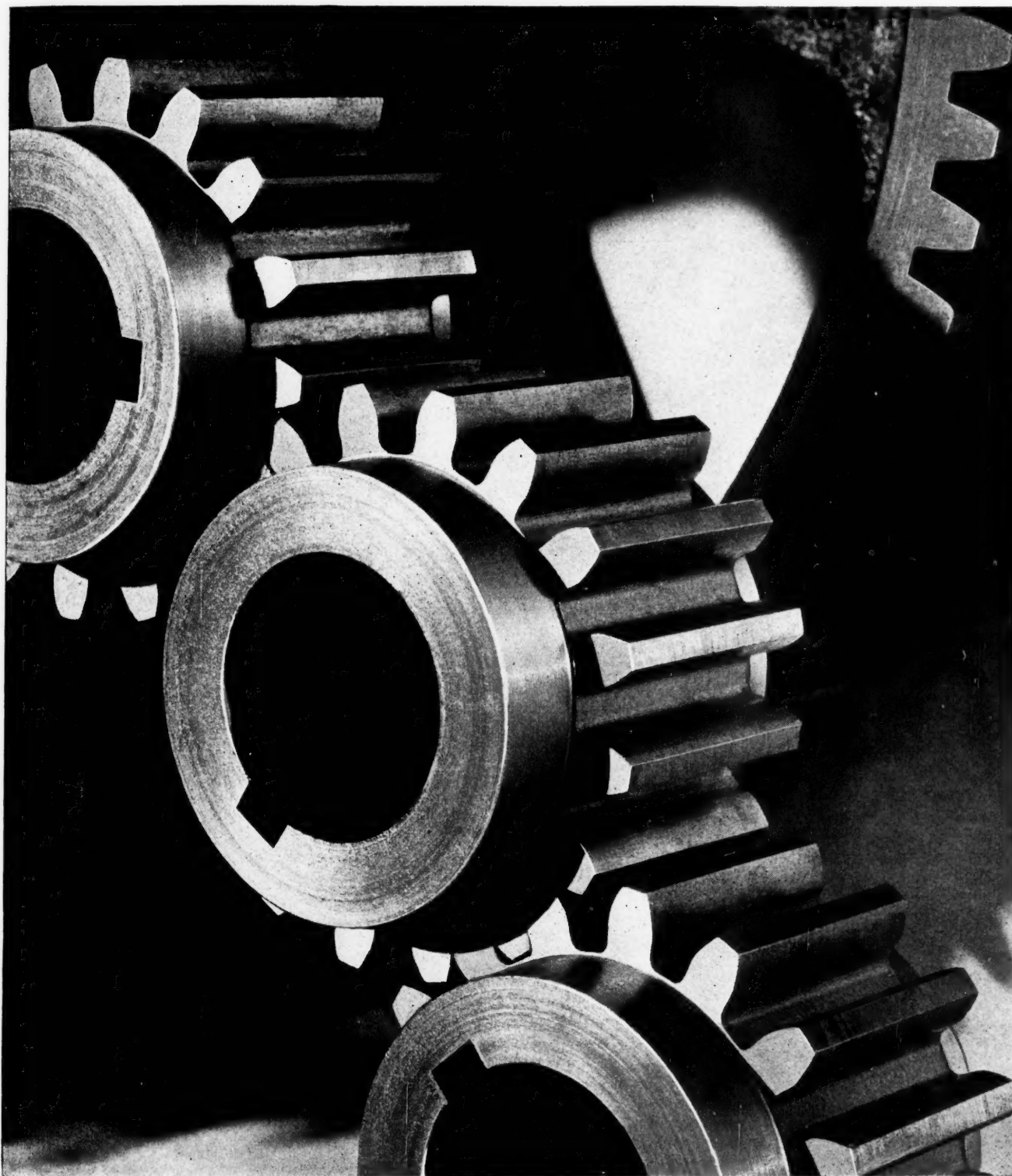
turbine, or a speed reducing gear may be used, according to conditions. Pump casing consists of two parts, separated in the plane of the center line of the shaft by a flat joint maintained air and water tight by a thin paper gasket. The case cover may be lifted off to make interior parts accessible. The propeller is designed for specified conditions of capacity, head and speed, and is finished on all surfaces. Casing around the propeller is protected by a separate sleeve which supports the guide vanes by which the liquid is directed in smooth flow-lines. The shaft is protected by a removable sleeve extending through the stuffing box and providing a bearing surface for the packing.

Low-Cost Photoelectric Relay

In view of a growing interest in the application of photoelectric equipment in various phases of industry and commerce, an announcement by the G-M Laboratories, Inc., Chicago, of a new, low-cost and simple photoelectric relay is timely. This unit, known as the Foto-Switch, embodies an electro-magnetic switch which is opened or closed by the interruption or variation in the illumination on the photoelectric cell. By its use, electrical devices, such as motors, electric signs, signals, alarms, etc., may be controlled through the medium of a light beam. Door-opening installations, burglar alarms, store window electrical displays and countless other applications are within the range of its use. It is suitable for automatically turning on and off artificial lights when natural daylight drops below or rises above a predetermined level.

Automatic Repeating Fuse

An automatic three-shot repeating fuse for high voltage has been introduced by the Southern States Equipment Company, Birmingham, Ala., manufacturers. In this unit, three expulsion-tube fuses are mounted side by side, each so controlled by a mechanical arrangement that when one blows it drops out of the circuit and the next fuse automatically takes its place. In practice this permits one tube in the circuit, while two are held in reserve. When a fuse blows, it may be removed, a new one inserted in the reserve position without danger or inconvenience, and without disturbing the other tubes. The new three-shot repeater fuse is available for voltages between 7.5 kv. and 110 kv.



Unretouched photograph of EARLE GEARS

EARLE

for all

GEARS

THE EARLE GEAR AND MACHINE CO.

4719 Stenton Ave., Philadelphia, Pa.

Please mail me, without obligation, your new
Catalog No. 31.

Name
Address
Company
City State
Position

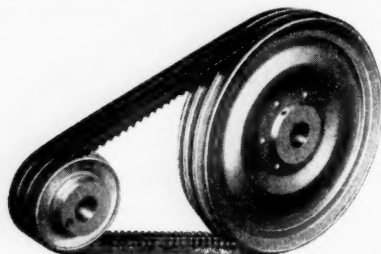


If estimates are desired,
enclose your prints. No
obligation, of course.

SEPTEMBER NINETEEN THIRTY-TWO

Dayton "Day-Steel" V-Pulleys

The Dayton Rubber Manufacturing Company, Dayton, Ohio, announce a new line of "Day-Steel" single and multiple v-groove pulleys for use with Dayton Cog-Belts, for ratings of $7\frac{1}{2}$ horsepower and below. These new "Day-Steel" Pulleys not only effect a saving in power transmission cost, it is said, but are much lighter in weight, making them particularly suitable for machines requiring these smaller horsepowers. They are accurately formed from heavy gauge

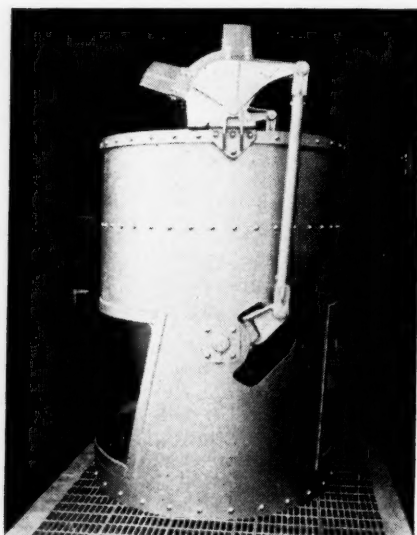


V-Groove Steel Pulleys

pressed steel for maximum strength—strongly welded both at the rim and at the web—and rigidly assembled with a hub of unique construction to give an accurately balanced pulley of exceptional ruggedness. High quality aluminum finish adds to the appearance.

Two-Line Type Concrete Bucket

A new form of concrete bucket has been developed by the Blaw-Knox Company, Pittsburgh, Pa., which is rated as a 2-cubic yard bucket, but declared to have an actual capacity of 62 cubic feet. It is particularly suitable for placing concrete where large quantities are being used, or where concrete is being placed



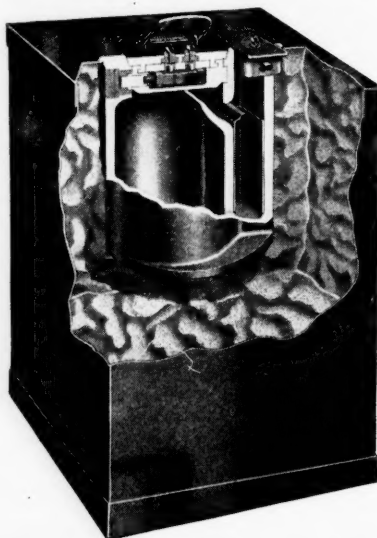
2-Cubic Yard Capacity

subaqueously. Cylindrical in form, this new bucket consists mainly of an inner and outer shell, the latter being a true cylinder extended to form a base for supporting the bucket while it is being

filled. The inner shell may be described as a flat cone, the discharge end of which is oval-shaped. It requires two hocks for operation and is commonly termed a two-line type. Distinctive features include a discharge gate operated by means of a twin bail, to which it is connected by thrust rods in such a manner that any movement of the twin bail is communicated directly to the gate. An advantage of the twin bail arrangement is that of keeping the two hook blocks well separated, thus avoiding interference with each other. The bucket is of rugged construction, and is made in sizes from about 2 cubic yards up.

"Cashgard" Chests

According to the Diebold Safe & Lock Co., Canton, Ohio, two new cashgard chests, especially designed for use in stores or offices where sums of \$500 or under are accumulated for bank deposit, are now available. Cashgard chests are



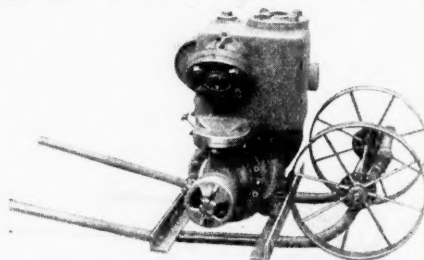
Cross-Section View of Cashgard Chest

described as "the foundation of a method of handling money that both prevents hold-up attacks and defeats them if attempted, without danger of injury or intimidation of employees and customers." The new chests are equipped with the latest type burglar-resistive door, which cannot be sledged, it is claimed, drilled or pulled open. Standard, installed in concrete block, the chests come in Nos. 120 and 121, an illustration of the latter being shown herewith.

Two-Inch Centrifugal Pump

The newest member of the "Domestic" line of pumps manufactured by the Domestic Engine & Pump Company, Shippensburg, Pa., is a 2-inch self-priming centrifugal pump of the recirculating type, with a capacity of 10,000 gallons per hour at 10 feet total head and 3000 gallons at 50 feet total head. This new pump, mounted on a new style

one-man truck, weighs 410 pounds, including the wheelbarrow frame mounting. Large size wheels of the truck facilitate one-man handling, while the frame effect of the handles allows the unit to set solidly when operating. A priming control regulator permits ad-



Pumps 10,000 Gallons Hourly at 10 Feet Total Head

justment of the recirculating system to assure maximum capacity and minimum priming time on any suction lift up to 25 feet.

Oilproof Portable Cords

The Okonite Company, Passaic, N. J., has developed a full line of portable cords and cables having a special outer sheath impervious to the destructive action of oil or grease.

New Design Standpipe

Built to conform with a prize winning design submitted in a contest conducted by the Chicago Bridge & Iron Works, Chicago, this elevated water tank of 300,000 gallons capacity was recently completed at Towson, Md., by the City of Baltimore. The structure is finished



300,000 Gallons Capacity

in aluminum and black paint to add to its appearance. Welding was extensively used in construction. Posts were completely welded in the shop, shipped to the site in one piece and set in position. The radial cone type bottom was welded at location.

Here's Protection for pipe lines subject to *Atmospheric Corrosion*



THE advantage of a copper content in steel, as a preventive of corrosion, is known to be most marked where alternate wet and dry conditions prevail. Under such conditions, generally indicated by the phrase, "atmospheric exposure", economy and satisfaction will reward the specification of NATIONAL Copper-Steel Pipe. The cost is little more than that of non-copper-steel and the difference will be well invested.

For soil, waste, vent lines, and rain leaders of various types of buildings and for exposed hand railings, pipe on bridges, flag poles, electric light and power poles and similar equipment subject to atmospheric corrosion, copper-steel pipe is unquestionably the logical choice. Many years of actual tests and service records have proved this. Ask for Bulletin 11, which gives full information concerning NATIONAL Copper-Steel Pipe—

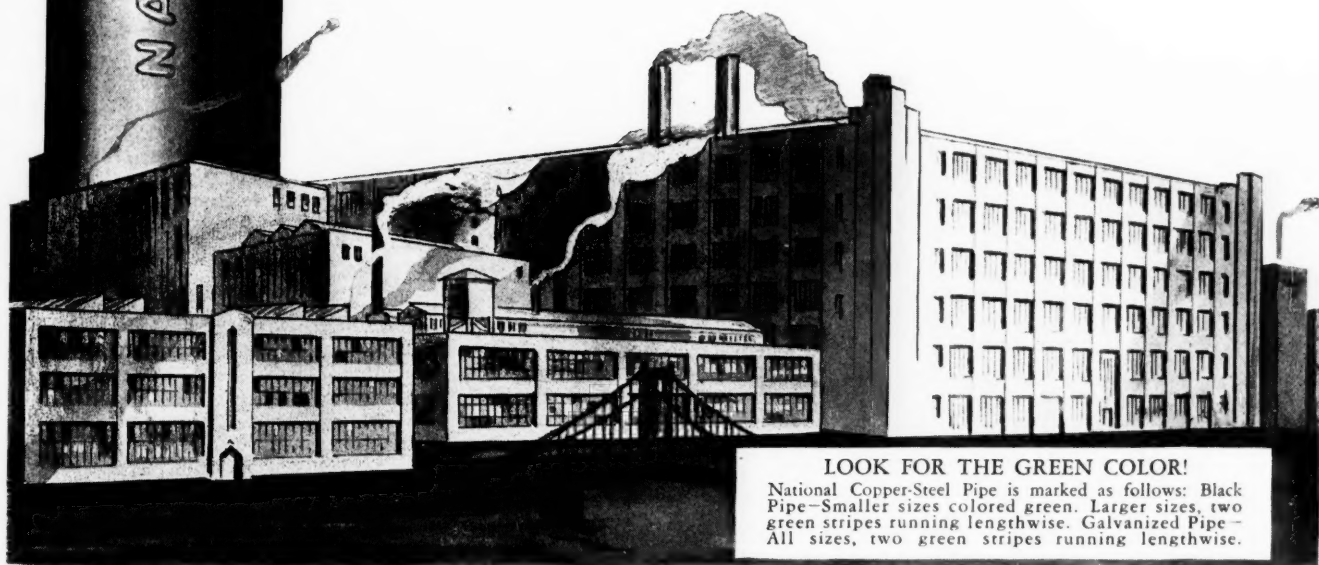
The Original Copper-Steel Pipe

NATIONAL TUBE COMPANY • Pittsburgh, Pa.

Subsidiary of United



States Steel Corporation



LOOK FOR THE GREEN COLOR!

National Copper-Steel Pipe is marked as follows: Black Pipe—Smaller sizes colored green. Larger sizes, two green stripes running lengthwise. Galvanized Pipe—All sizes, two green stripes running lengthwise.

NATIONAL COPPER-STEEL PIPE

SEPTEMBER NINETEEN THIRTY-TWO

LETTERS FROM OUR READERS

Constructive Discussion of Business Questions Will Hasten Recovery

THE INGALLS IRON WORKS COMPANY
Structural Steel
Buildings and Bridges
Executive Offices
BIRMINGHAM, ALA.

Editor Manufacturers Record:

You have made a step in the right direction in deciding to issue a monthly publication. The MANUFACTURERS RECORD unquestionably ranks first in Southern business publications and is the equal of any in its field, no matter where published. Your position, over a period of 50 years, has been constructive. At no time have you lacked courage to speak your convictions and even if one disagreed, there was no resentment or bitterness following in the wake.

There can be little doubt that business conditions are on the upgrade. By that I mean that everyone is reconciled to the new order of things and all are adjusting, or have adjusted themselves. Industry is functioning on a more economical basis and, with any increase in volume of business, figures will be turned quickly from red to black. It is to be hoped that the major political parties will not resort to destructive criticism in their campaigns because business is especially timid at this time and anything of that nature would retard our recovery at least a year. Business must be treated sympathetically and abuse of it by politicians should be resented by the press of this country.

R. I. INGALLS, President.

Era of Unparalleled Development Ahead of South

MISSOURI PACIFIC LINES
ST. LOUIS, MO.

Editor Manufacturers Record:

There cannot be any question regarding the ultimate future in the mind of anyone familiar with the matchless resources, exceptional climatic conditions, limitless fertility, unexcelled transportation facilities and remarkable population throughout the South, the Mississippi Valley and the Great Southwest.

With a nation so great as America, with more than 125,000,000 people educated to the highest individual standard of living the world has ever known, it is inconceivable that the country as a whole can go backward for very long

at a time. When the economic pendulum swings toward the upper edge of the arc, in my opinion there is certain to be a great revival of business and industry and prosperity, especially throughout the territory bounded on the north by the Missouri River, on the West by the Rocky Mountains and on the south by the Rio Grande. I believe the entire South will make definite and marked progress in the next quarter of a century, and every analysis of all of the available data would indicate that the so-called Southwest should enjoy an era of unparalleled development in all lines of activity.

L. W. BALDWIN, President.

A Step in Right Direction

PITTSBURGH PLATE GLASS COMPANY
PITTSBURGH, PA.

Editor Manufacturers Record:

We were very much pleased with the appearance and general format of the MANUFACTURERS RECORD as a monthly. We were especially well pleased with the splendid way in which the half-tone illustration of our Pennvern advertisement on page 11 turned out. In changing from the former basis to the basis of a monthly publication and in using better paper, we feel sure that you have taken a step in the right direction.

C. H. SHORT.

American Industry to Set New Record

C. R. MORGAN
CHARLESTON, W. VA.

Editor Manufacturers Record:

The new monthly MANUFACTURERS RECORD will broaden your field and the Daily Construction Bulletin will help speed up the return of American business.

Prosperity to an unprecedented degree is before us. We have all the ingredients: Manufacturing facilities, transportation, raw materials, adequate capital, bountiful food stuffs, skilled and unskilled labor.

We have learned our lesson of burnt batches and poor mixes. We are ready to give and take, live and let live, and to do all we can to bring about a prosperous condition. The manufacturer has learned that his employee is his best market, that every man put to work multiplies his purchasing power. The wheels will run a little unsteadily at first, but momentum will gradually be gained and a period such as we have not seen will be before us. The next ten years will set a new record in American industry and prosperity.

C. R. MORGAN.

Preparing for Greater Development

CENTRAL POWER AND LIGHT COMPANY
SAN ANTONIO, TEXAS

Editor Manufacturers Record:

It has always appeared to me that the MANUFACTURERS RECORD was sponsoring the development of the most interesting section of the nation.



Those of us, who have followed development activities in that section, know, of course, that our work is just begun, and that considering the nation as a whole, we have before us the greatest unfinished task of any part of our nation.

Two years ago probably we could have said—We are in the midst of our task. Today, due to many conditions and factors, which we have temporarily inherited, we must content ourselves with the thought that now we are preparing our plans to resume the work which has been temporarily suspended. It is unquestionably true that when our development is resumed, it will be on a sounder basis, on at least a more cautious and more carefully conceived plan than we were following in the past. Certainly the experiences gained during the past two years should provide business leaders with the necessary information for future guidance.

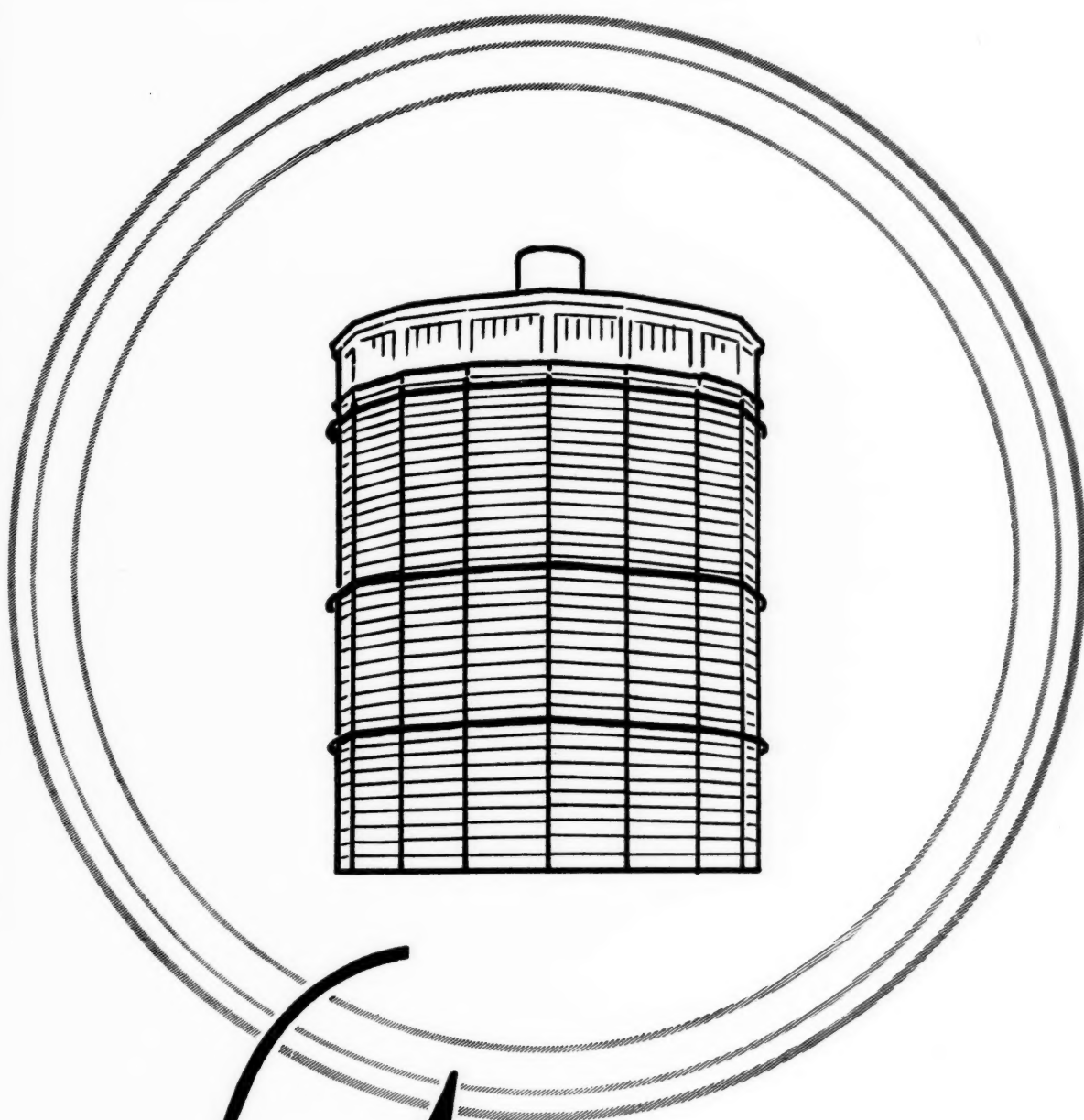
Our development in the utility field in the Southwest was planned with the distinct purpose of providing adequate utility facilities for the decentralization of many branches of Eastern manufacturing establishments which certainly cannot successfully combat the burdensome distribution problems which they have faced in the past.

The trend of population increase in the Southwest must bring its own reward in the establishment of those industrial institutions which the growing population demands. The utility interests of this section, can, as a result of their faith and optimism, in the future, say to those industrial leaders that the South and Southwest are prepared to offer, not only distribution opportunities and utility service for any demands, but we further can offer the natural resources and labor conditions which must gain for us a proper recognition of our advantages.

It is, of course, fitting that the MANUFACTURERS RECORD, which has been fostering the development in the South and Southwest for 50 years, should be the logical agency to continue this helpful publicity work.

We are privileged to serve in what may be properly called "America's Last Frontier" and present conditions can, in no way, cloud our vision as to our future opportunities, when conditions will again encourage expansion and development.

E. B. NEISWANGER, President.



Gas

FOR HEAT
WHEREVER HEAT
IS NEEDED

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SEPTEMBER NINETEEN THIRTY-TWO

TEXTILE NOTES

Increased Mill Activity

With the advance in cotton prices during the month of August there was a quickening of spinning activity with many mills in the South increasing operations and taking on additional employees. There was a decided optimistic trend among all branches of the industry. Distributors stocks are below normal.

While many mills stepped up production to four and five days a week, others have been operating full time of 55 hours a week and a few plants have been running day and night. However, there is still room for improvement, for the industry as a whole is not prosperous. Continued effort has been made to hold the mills in line with the general plan sponsored by the Cotton Textile Institute to eliminate night work to which about 80 per cent of the industry subscribed.

The volume of cotton goods orders at times has been large and prices advanced on some of the standard constructions from 15 to 20 per cent. Due to the rapid advance in raw cotton prices it was difficult in many cases to keep cloth prices in line. There is a general move to increase prices throughout the textile field which would help to restore profit margins to compensate for rising costs of raw materials. The Tubize Chatillon Corporation on August 25 announced its first advance in the price of rayon yarns since the downward swing of prices began two years ago. The advance was about 10 cents a pound above the low prices for the depression period.

Employment Gains in Textile Trades

Commercial Investment Trust, whose factoring subsidiaries are reported to do the largest textile factoring volume in the country, has completed an employment survey of some of the larger mills doing business through its organization. The net additional number of persons employed in 95 mills on August 12 as compared with July 1 was 4,061, a 20 per cent increase during that period. Opinion was evenly divided among the heads of those mills as to whether or not the present demand was more than late seasonal buying. More than half of the replies indicated that demand would carry them through the fall season until the necessity for commencing the manufacture of spring merchandise arises.

Southern Textile Show

Space for the Southern Textile Show which opens at Greenville the week of October 17 is being rapidly taken. This exposition attracts representatives of the industry from all sections who gather to study manufacturing equipment and methods.

Favor Cotton Wrapped Bales

Martha Mills, textile division of the B. F. Goodrich Company, Silvertown, Ga., (P. O. Thomaston), will pay for seven pounds of additional cotton per bale at current cotton price if the bales received are 100 per cent cotton wrapped. Albert T. Matthews, vice-president and manager of the mills, says the action was taken to promote the increased use of cotton and it is hoped it will stimulate a similar move by other companies affiliated with the cotton industry.

Jute wrapping on a bale of cotton weighs about 12 pounds while an all-cotton wrapping weighs about 4½ pounds, or about 7 pounds per bale less tare (weight of bagging and ties) is allowed the farmer. To protect the producer, therefore, and encourage the cotton ginners and shippers, the company agrees to pay for 7 pounds additional cotton for each bale that is wrapped in cotton bagging instead of jute.

Record Cotton Shipments

With Houston breaking an all-time cotton shipping record and Galveston setting a new high mark in shipments for the last three years, Texas cotton exports for the season ended July 31 showed a substantial gain over last year. Foreign cotton exports from Galveston for the year reached a total of 2,190,186 bales as compared with 1,213,000 bales for the previous season. Cotton shipped through the port of Houston amounted to 2,655,094 bales, an increase over the 1930-31 season, and 100,000 bales over the previous record set during the 1926-27 season. During the past season it is reported that more than 1,410,000 bales reached Houston by motor truck from interior points.

Cotton Cloth Sales

July sales of cotton cloth, amounting to 222,616,000 yards, or 157 per cent of production, was a major accomplishment in supply and demand adjustment, according to the Association of Cotton Textile Merchants of New York. Billings were 165,574,000 yards or 116.9 per cent of production. Production during July was 141,673,000 yards, the lowest rate on record. August is expected to show a gain with sales greatly in excess of output during the mid-month period.

Mills Active in Japan

Forwarding of American cotton to the mills of the Orient continue heavy and the New York Cotton Exchange Service reports that the mills of Japan were running at a high rate in August and are consuming a large amount of American cotton relative to their consumption of Indian cotton. Much of this cotton was bought in anticipation of the decline

in the yen and the break in the yen value gave Japanese buyers a handsome profit. The large holdings of American cotton by the Orient would suggest that Oriental spinners will consume American cotton heavily this season unless the spinning industry of Japan and China suffers a severe setback. The low yen value gives Oriental spinners a great advantage over English, and of course American mills, in the Far Eastern markets.

Cotton Cloth Exports Higher

Cotton cloth exports for the first half of this year were 13 per cent higher in volume than for the corresponding period of 1931. According to the Commerce Department, important increases were noted in cord tire fabric, bleached sheetings, flannel and flanneletes, percale prints, chambray, unbleached ounce duck, bleached drills and twills, cotton fabrics sold by the pound, and other piece dyed fabrics. The gains are significant in view of the fact that they were made in face of competition from countries off the gold standard, increased tariffs and depleted purchasing power.

Resorting to Barter

The South is not the only cotton region to feel the price decline. From Egypt it is reported a drastic moratoria on farm rents have become necessary to relieve the tenant farmer, composing about 70 per cent of the population. Large areas of cotton have been plowed up in the Lower Egyptian Delta. It is reported that negotiations between the Egyptian government and German fertilizer companies have been completed for the exchange of 50,000 tons of German fertilizer for about 20,000 bales of Egyptian raw cotton.

Cotton in Road Construction

After six years of service under general traffic conditions on stretches of South Carolina highways, cotton fabric used as bonding material has demonstrated its value in road construction. Charles H. Moorefield, South Carolina Highways Engineer, reports that the fabric is still sound and apparently as strong as when it was installed, and that by holding the roadbed intact it has reduced maintenance cost. The use of cotton fabric in highway construction has been followed by other Southern states, notably Georgia, Texas and Louisiana.

Birmingham Cotton Exposition

A cotton exposition, which is south-wide in objective and interest, is planned for the months from October through December in Birmingham, Ala. The committee, of which Thomas Bowron is chairman, has arranged for ample housing of the exhibits which are expected to include every use to which cotton is put in agriculture, household and industry. There is no charge to the exhibitors and the exposition is not to be commercialized. Everything to promote the use of cotton will be encouraged.

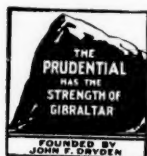
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INDUSTRIAL NEWS

Okonite Company Changes

H. Durant Cheever, president of the Okonite Company, Passaic, N. J., has been made chairman of the board and Frank Gasenove Jones, vice president and general manager, has been named president and general manager.

High Explosive of Low Density

The Atlas Powder Company, Wilmington, Del., announces Apex No. 1, a new explosive. Designed for rock blasting, Apex is a high explosive of the low density type. In addition to rock and quarry work, Apex is said to be well suited for blasting coal overburdens.

Mid-West Locomotive Representative

Ralph Rollins, Charlotte, N. C., has been appointed representative in the Southeast of the Mid-West Locomotive Works, Hamilton, Ohio, according to announcement. Serving a connection of more than ten years with the Whitecomb Locomotive Company, Rochelle, Ill., Mr. Rollins has had wide experience in the locomotive industry.

Champion Coated Paper Distributors

The Champion Coated Paper Company, Hamilton, Ohio, announces three new distributors for the South in the Tayloe Paper Company, Tulsa, Okla., the D & W Paper Company, Inc., New Orleans, La., and the Tayloe Paper Company, Memphis, Tenn. Connections with these distributors come at a time when the Champion Mills are about to announce major improvement in their papers throughout the line, it is said.

Acquires Manufacturing Rights

The Harnischfeger Corporation, Milwaukee, Wis., announces the acquisition of manufacturing rights for motors and generators formerly produced by the Northwestern Manufacturing Company of Milwaukee. The line includes motors in capacities from 1/2 to 150 horsepower, embracing types for diverse applications. Important changes and additions to the line are contemplated by Harnischfeger engineers, working in conjunction with the key men of the former Northwestern Company.

Big Recording Lock Order

International Business Machines Corporation, New York, has booked an order for 500 electrical recording locks from the Walgreen Company, Chicago, operator of a chain of drug stores. This order, one of the largest of its kind ever placed, calls for the installation of time recording door locks on entrance doors of 476 stores of the drug chain, in 119 principal cities of 30 states. Locks specified in the order are of an improved type recently introduced by the International Time Recording Company division of International Business Machines Corporation.

Radio Telephone Improvements

After three years of operation in which the radio telephone has flown millions of miles over the air routes of the United States, a new type of equipment has been developed by the Western Electric Company in cooperation with the leading transport

companies. The new equipment makes it possible for the pilot to use any one of three frequencies for transmitting by merely pulling a lever. Sharp selectivity of the receiver eliminates interference and the output of the transmitter has been so increased in efficiency that pilots can speak to airports from greater distances than has been possible heretofore.

Acquires Crane Business

Plans are announced for the acquisition by Manning, Maxwell & Moore, Inc., New York, of the business of the Box Crane Corporation of Philadelphia, the transaction to be effected on a cash basis without the exchange of securities. The Box Crane business will be merged in the plant at Muskegon, Mich., of the Shaw Electric Crane Company, a subsidiary of Manning, Maxwell & Moore, Inc. The purchase does not include Philadelphia land and buildings.

Going After Business

W. I. Brockson, sales promotion manager, Steel Sales Corporation, Chicago, referring to business conditions in the South, says: "One who travels through Kentucky and Tennessee and fringes the borders of half-dozen other Southern states cannot fail to note the feeling of determination with which business people in that part of the country are going after business. Many concerns are overhauling their sales machinery, some of them are producing new products, and a number are planning more aggressive advertising and sales promotion campaigns for early fall."

Furnace and Insulation Maintenance

The Georgia Gun-Kote Company, 686 Greenwood avenue, Atlanta, Ga., was recently organized for service to power plants, industrial plants and chemical plants in the maintenance of furnaces and insulation, and for other work which may be handled advantageously with a portable cement gun-compressor outfit. Eugene A. Brooks and Walter J. Rountree are incorporators of the company. The former is a member of the Brooks-Fisher Company and of the Brooks-Fisher Insulating Company. Mr. Rountree, who will actively manage the new company, for many years has been an engineering executive of Georgia Power Company.

TRADE LITERATURE

Stainless Steel Sheets.—The American Sheet and Tin Plate Company, Pittsburgh, Pa., a subsidiary of the United States Steel Corporation, is producing a comprehensive line of stainless and heat resisting steel sheets and light plates, which are described in detail and their applications illustrated in a new booklet issued by the company under the title "American U S S Stainless Steel Sheets and Light Plates."

Cadalyte.—The Grasselli Chemical Company, Inc., Cleveland, Ohio, has issued a booklet on Cadalyte—A Process and Product for Cadmium Plating. As related to the company's activities in the field of rust protection, the booklet is intended to outline results of its research work on the application of cadmium.

Tamping Roller.—Bulletin No. 1403, devoted to the Blaw-Knox Ateco Tamping Roller, is issued by the Blaw-Knox Company, Pittsburgh, Pa., to show advantages of using tamping rollers from both an engineering and contracting standpoint.

Fertilizer Plant Equipment.—The Gruendler Crusher and Pulverizer Co., St. Louis, Mo., is distributing a folder illustrating and describing the Gruendler Fertilizer Plant Equipment, a new development designed for utilizing waste materials, etc.

Clark Trutractor Catalog.—The Clark Trutractor Company, Battle Creek, Mich., manufacturers of material handling vehicles, have issued a miniature catalog illustrating and describing their products and pointing out how the application of these products, in various kinds of industrial work may cut costs.

Steel Sheet Piling.—The Carnegie Steel Company, Pittsburgh Pa., subsidiary of the United States Steel Corporation, has issued Insert-A for inclusion in the copy of Carnegie Steel Sheet Piling. Several illustrations of recent interesting piling installations are presented, including a new canal lock, basins and Bayou St. John, New Orleans, La., and a sewer trench wall at Louisville, Ky.

Mueller Anniversary.—The Mueller Co., Decatur, Ill., has issued an anniversary number of the Mueller Record, official publication of the company, commemorating the 100th anniversary of the birth of Hieronymus Mueller, born in Germany in 1832, and celebrating the 75th anniversary of the business. This company is a pioneer in the manufacture of plumbing, water and gas brass goods.

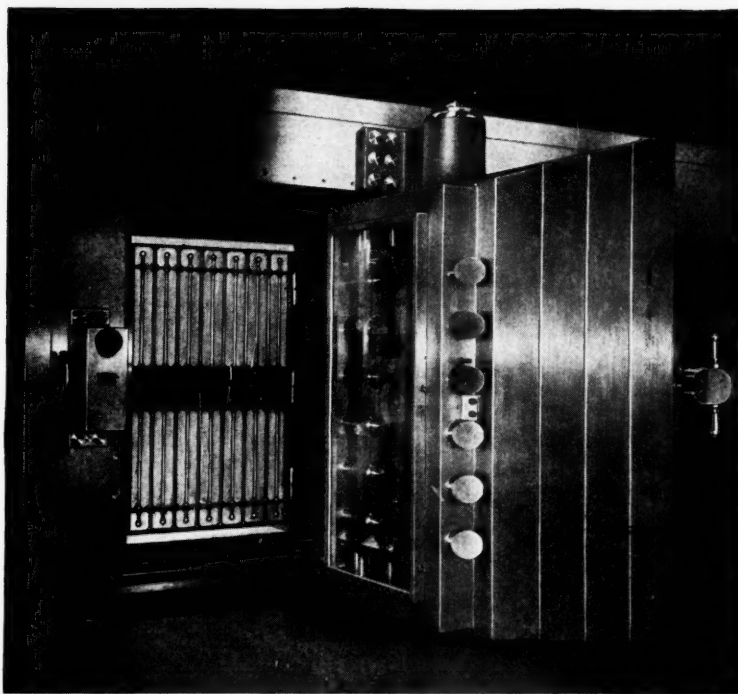
Pumps and Accessories.—A. D. Cook, Inc., Lawrenceburg, Ind., manufacturers of deep well pumps, deep well turbines, patent brass tube well strainer and tubular well supplies, have issued a new bulletin No. 303 on the Cook Patent Wire Wound Well Strainer; revised bulletins Nos. 29 and 36 on Cook Cup-Leathers with Patent Formed Cup-Leather Spacing Rings, and the Cook Deep Well Turbine, respectively.

Double Suction Pumps.—Centrifugal pumps for large outputs, as in waterworks pumping stations, are illustrated and described in Catalog B-4, issued by the De Laval Steam Turbine Company, Trenton, N. J. Among the units illustrated are geared turbine driven pumps delivering 75,000,000 gallons per day against 150-foot head, and motor driven pumps of 30,000,000 gallons per day capacity against 250-foot head, showing on efficiency tests a combined motor and pump efficiency of 84.5 per cent.

G-E Oil Furnace.—The new General Electric Oil Furnace, declared to be revolutionary in design and economical in fuel consumption, is described in a preliminary report by the engineers of the air conditioning department of the General Electric Company. One complete unit combines burner, boiler and hot water heater in a single coordinated design, while Thermal Control, electric clock, safety controls, low water cut-off and domestic hot water heater for year round service are included in a flat price.



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THE YORK Vault now being installed in the Bank of Japan at Tokyo is the largest ever built. It comprises in fact two vaults, each 187 ft. by 83 ft.

Entrance to this massive structure is guarded by seventeen doors. Six of them are 36" and eleven are 24" in thickness of solid metal. Weighing

approximately 3500 tons, this entire vault equipment was built in the York factory at York, Pennsylvania and is being installed in the Bank of Japan at Tokyo by York engineers.



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FINANCIAL NEWS

Trade Acceptances

The growing use of trade acceptances, which is being stimulated by various public bodies, such as the Credit Association and the National Industrial Conference Board and groups of bankers, deserves encouragement. A general adoption of this form of debt acknowledgment would simplify financial arrangements in several ways. It is readily negotiable when given by those in credit standing and while not different from a promissory note in one respect, it is an immediate acknowledgement of an obligation which puts the seller in a much better position in the handling of his own affairs, especially during a time like the present, than he would be with open accounts. Bankers are encouraging the wider use of this form of commercial paper, and a stimulus to business in all parts of the country is predicted as a result of putting buying and selling transactions on a trade acceptance basis.

Home Loan Banks

The country and its outlying possessions have been divided into districts for the purpose of 12 home loan banks, which are intended to relieve the frozen mortgage situation. Winston-Salem, N. C., is selected in the Southeast and Little Rock, Ark., in the Southwest. Their capital will range from \$6,000,000 to \$20,000,000 and is to be subscribed by the Reconstruction Finance Corporation. Instead of being a political gesture, which some have charged, it is evident that there is inestimable power for good in a movement of this kind if rightly conducted. Mounting taxes and unemployment and the fear of losing one's home have had a severely depressing effect upon a large part of America's population. This is a country of homeowners and the relief of their distress in a period of embarrassment deserves the heartiest encouragement.

It is not to be taken that loans will be made on other than good collateral with a proper margin for depreciation. It would be calamitous otherwise. The growth of the new system depends upon its ability to borrow from the general investing public by issuance of its own bonds or debentures, so that every precaution must be taken to insure soundness in its operation. The law enacted by Congress reads "all obligations of Federal Home Loan banks shall plainly state that such obligations are not obligations of the United States and are not guaranteed by the United States."

Money for Home Builders

The First National Bank of Tulsa, Oklahoma, recently announced that it had several thousand dollars to lend to prospective home builders upon comfortable terms and under reasonable conditions. The announcement says the loan fund will open at once and applications are invited. The Southwest always does

things in a wholehearted, big way. The loans are to be made for five years and the object is to stimulate employment of labor in the building industry and among furnishers of materials in lines that have been woefully dull for a long time.

Splendid Credit

Maryland bonds to the amount of \$3,076,000, sold at 105.6079, a remarkable figure under present conditions. In August, Missouri placed a \$5,000,000 issue of 4½'s at \$102.817. Conservative borrowing on the part of states, as with individuals, maintains credit at a high figure.

Increased Holdings of Governments

Bank holdings of United States Government securities have been rapidly increasing. One week in August they grew over \$350,000,000, which was due in part to heavy financing by the Treasury and the demand for government bonds enjoying the circulation privilege.

Federal Reserve Loans to Individuals

Private loans to individuals by the Federal Reserve banks have not been very plentiful. How could they be? Rules of the Federal Reserve System cannot be laid aside and it is difficult to imagine that a borrower with a note "eligible for discount" could not get the necessary accommodations from his own bank, or one nearby.

Government Competition

Not all railroad men agree that they should borrow money from the Reconstruction Finance Corporation for improvements when competitive traffic is not regulated, according to their view, in a manner that affords fair competition. They also object to the government operation of barge lines. In view of the unfairness of the thing, and also the losses that the government incurs in such operation, protests against this kind of competition with private business are increasing in number and vehemence.

"The Impregnable Bank"

The Wall Street Journal carries an item about the Bank of England, which it terms "The Impregnable Bank." The "old lady of Threadneedle Street" is making improvements in her home costing \$2,500,000. "Vaults are being constructed 60 feet below the street level. There gold reserves will be safeguarded in the most impregnable gold fort ever constructed by man. They are guaranteed to resist assault, bombardment, dynamite and flood for 500 years. When

these new vaults are completed, the old adage "Safe as the Bank of England" will take on a new significance."

Cotton Goes Up

The rise in the price of cotton, which has continued steadily for several weeks, at the time of writing this has advanced more than 80 per cent. This has been of great encouragement to the country banks of the South holding large quantities of cotton as collateral. An article elsewhere in this issue refers to the added wealth this fairer price has brought to the Southern states of over \$200,000,000—an appreciable increase in the wealth of any section, and a stimulus to buying that is bound to be felt in the near future.

B. and O. Loan

The Baltimore and Ohio Railroad has borrowed from the Reconstruction Finance Corporation \$31,625,000 for refinancing a bond issue, maturing March next, of \$63,250,000. It is anticipated that bondholders of this issue will be paid 50 per cent of their holdings in cash, with refunding and general mortgage bonds for the remainder. The Reconstruction Finance Corporation is lending only on good security and bankers in contact with the situation say that losses will be inconsiderable if present prudent plans are continued. This agency for recovery has a gigantic task. The effect of its work will reach into the lives of every man, woman and child in America. The quickness with which it was given form, and the establishment of such a vast business enterprise in such a short time is evidence of the way America can act in an emergency. It already has offices in every important center of the country, with thousands of employees, and will eventually handle \$3,800,000,000, a sum too vast for the ordinary mind to grasp.

Farm Income Less

National farm income figures are about where they were in 1909, or approximately \$6,500,000,000. Nineteen thirty-one produced the lowest farm income of any year since 1912. Farmers in the West have been taking things in their own hands in the hope of improving the market, with the inevitable result of failure, because the people of America will not stand for long, the use of force in upsetting the processes of law. At the same time something must be done about it.

A farmers' strike, if carried far enough, would put the country in a bad way. Lack of organization is not the only thing that prevents it. At bottom, the farmer loves his work. He loves to see the earth turn under his plow. He loves his life in the open outside of four walls, and incidentally, while he does not make much financial progress, he is independent of many of the restrictions of our modern life, which irk tremendously. In other words, he is not altogether an object of pity, although he is entitled to a fuller reward for his labor.

Farm mortgage loans from life insurance companies have been decreasing. At present they approximate the amount outstanding in 1925. The total January 1 was \$2,015,000,000.

The New Era

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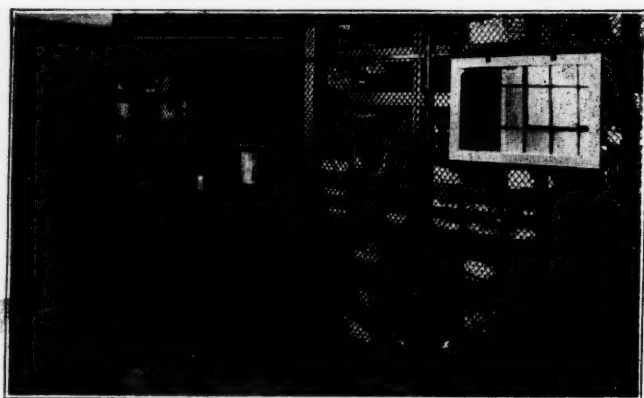
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Cyclone Window Guards protect the glass and prevent entrance. Furnished in practically any size wire, any size mesh, for any size opening. Send list of window sizes for accurate estimate.



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ITEMS OF INTEREST

THE WESTERN ELECTRIC COMPANY announces production of "a simple and compact photo-electric cell outfit" designed to operate on 115 volt alternating current. Equipment may be arranged to open or to close an electrical circuit on either the interruption or completion of the light beam.

It contains an ordinary automobile headlight bulb, fed by a suitable transformer, furnishing light for the beam as well as the condensing lens to produce a parallel beam of light. By the use of bulbs of varying candle power, the distance between light units and the light-sensitive relay may be increased or decreased. The photo-electric cell can be actuated by a beam of light reflected by one or more mirrors.

Among the more common uses for which it can be applied is counting persons and objects; checking and inspecting imperfect samples, and regulating production; fire protection and alarm; smoke indication; activating mechanical starters, door opening and closing, burglar alarms, etc.

THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION complains of imported steel selling in coast cities for \$20 a ton under our price. This is a deterrent to the employment of American labor and the purchasing officers of some states are stipulating that only American steel may be used in construction projects—a wise and necessary provision.

NEW ORLEANS reports tonnage handled by the Federal Barge Line from points on the Lower Mississippi River totaled 296,000 tons for the first six months of this year, more than double the amount in the corresponding period of 1931. Competition for the railroads.

A NEW ELECTRIC BULB has been invented that produces safe ultra-violet health rays at low cost for domestic use. The Cosmos Corporation of Newark, N. J., which is manufacturing it, see in the not distant future a time when ordinary lighting in most homes will be not only a source of illumination, but also of health-giving ultra-violet rays. Reduced sunlight in the fall and winter lowers human resistance to disease. Scientists tell us that is why illness increases during the dark months and declines with the approach of spring. One of the claims for the new lamp is that it is possible for underground miners and those employed in factories to work under the same ultra-violet rays that surround the farmer in a sunny field.

HYDROGEN, lightest of the elements, is working wonders with its introduction into various products, of which one of the most important is the improvement of low-grade lubricating oil into oil of superior excellence. The hydrogenation plant of the Standard Oil Co. at Baton Rouge, La., which is a duplicate of the one in New Jersey, is manufacturing solvents for paint, soap and textile industries, safety gasoline for aircraft and motor boats, benzol substitute, kerosene and other products.

WHOLE TRAINS of freight cars will be transported between New York and Havana this fall when it is expected the Seatrain Lines, Inc., is put in operation. Electric hoists, for which 250 h. p. motors have been supplied by the General Electric, will bodily swing loaded freight cars from dock to ship and vice versa. Ships will have a capacity of something more than 100 loaded cars of an average weight of 55 tons.

598 SHIPS of all classes were built in American shipyards during the year ending June 30, with a total gross tonnage of 221,907 tons. 414 of these vessels, with a gross tonnage of 185,788 were listed under Atlantic and Gulf ports. The United States Shipping Board, with a fleet of 362 ships of 2,088,864 gross tons, is the world's largest shipowner.

LONDON reports gasoline in the form of bricks of solid petrol is being produced. It does not melt, but gives off a gas necessary for engine running without ever passing into a liquid state.

AN OPERATING EFFICIENCY RECORD is claimed by the Eastern Air Transport. In July this company flew 99.8 per cent of its scheduled mileage. Only three trips in a total of 826

MANUFACTURERS RECORD FOR

were incompleated and 499 miles of a scheduled total of 318,252 were unflown.

The last week of August a man is taking his family to England by air, with stops in Greenland and Labrador. The first westward solo flight has just been completed by an intrepid Englishman. Air travel is becoming more and more the accepted order of the day. Thirty-six airships daily join the Northern and Southern states. The principal cities of the Continent are thus brought into closer and quicker touch, and perhaps sooner than we think we shall be in daily touch with other continents.

THE AUTOMOBILE CHAMBER OF COMMERCE is authority for the statement that the total expenditure of vacation motorists in 1931 was \$3,110,000,000, and of this more than \$2,750,000,000 was spent in the United States. So much for good roads and the desirability on the part of communities of catering to those who visit nearby and far-off places by motor. It will be a mistake ever to lessen our appreciation of the economic value of improved highways as a wealth producing factor in national development.

MANCHESTER, ENGLAND, reports the discovery of "creaseless cotton." It is a product that is pressed into the cotton fibre, which it permeates, and is said to be applicable to a wide range of products. It has the advantage of cheapness.

LOUISIANA is advertising her frogs. She shipped last year nearly 2,000,000 pounds of frog meat, valued at more than \$300,000. Six years ago only 44,000 pounds, valued at \$6600 were shipped.

JAPANESE COLONISTS along the Amazon will soon number 5,000, says the Associated Press. They have concessions of more than 2,500,000 acres and are engaged in tropical agriculture on an extensive scale.

FRANCE has announced that import quotas for the third quarter of 1932 have been reached on electric motors, industrial transformers, radio tubes and a variety of other products, and no more imports of these products will be received. Somebody has remarked that this is an "embargo with a vengeance."

KINSTON CLAIMS the first North Carolina coffee plantation. It was started by two Russian families on 100 acres of land.

PROGRESS in the development of the sodium vapor lamp is reported by the General Electric Company. The brilliant yellow glow is not appropriate for general lighting in houses and stores where color values are essential, but is desirable for spectacular lighting and in the wider field where cheap lighting is demanded. The lamp is tubular in form, operating within a glass cylinder. It operates at about 410 degrees Fahrenheit, and with a brightness of 14 candle power per square centimeter.

OIL, which was depressed last year, is presenting a better showing and practically every large company, independent or major, is showing figures in black ink on the ledger in the second quarter of the year. The market is holding a strong position and work is going forward to halt the flood of illegally produced oil, which has kept actual output considerably above the reported level. Greater strength and stability in the oil industry is predicted in oil centers by men qualified to speak.

SHOE PRODUCTION continues to increase. Some factories are operating from 85 to 90 per cent of full capacity.

HEAVY INCREASE in postal rates is apparently not working out as intended. Business being at a low ebb, pennies are saved and to large companies with enormous mailing lists 50 per cent increase on first class postage has meant a serious charge against their diminished revenue. While it is forbidden to contract for organized messenger service to compete with the mail, business houses in various localities, it is stated, have felt justified in the employment of their own messengers, finding it less costly than the mails. The opinion is hazarded by a section of the press that the charge for postal rates may have reached a point where the law of diminishing returns is operating.

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ical Society promise to free cities from the danger
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problem. Dr. Robert D. Snow, University of Illi-
nois, in laboratory tests is reported to have solved
the problem by removing the sulphur from the coal
before it is burned.

\$2,300,000,000 Construction Projects

The American Society of Civil Engineers esti-
mates that public projects, other than those of the
Government, totalling \$1,400,000,000, are ready to
go forward and that others involving about \$900,-
000,000 could be made ready if desired.

Liquid Coal Tests

Successful tests have been made with "liquid
coal" by German interests, states the Commerce
Department. The fuel was composed of 55 per
cent by weight of coal dust and 45 per cent of tar
oil and burned with ordinary steam expansion
sprayers, without pre-warming.

Engineering Council

Establishment of an Engineers' Council for Pro-
fessional Development is reported to be making
headway. The body, to be composed of represen-
tatives of professional engineering organizations,
will coordinate and promote efforts toward higher
professional standards of education and practice
and develop a plan whereby the engineering pro-
fession may act as a single agency in improving
the status of the engineer. Five of the seven
national engineering organizations have ratified
the new agency officially. They are: American
Society of Civil Engineers; American Institute of
Electrical Engineers; Society for Promotion of
Engineering Education; American Institute of
Chemical Engineers; and American Society of
Mechanical Engineers. Two other bodies are ex-
pected to join the movement.

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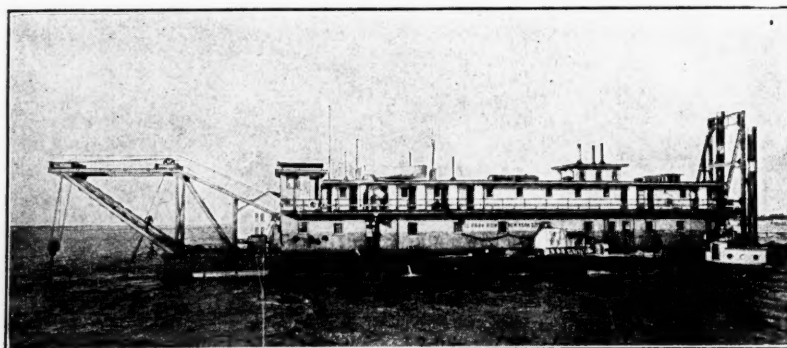
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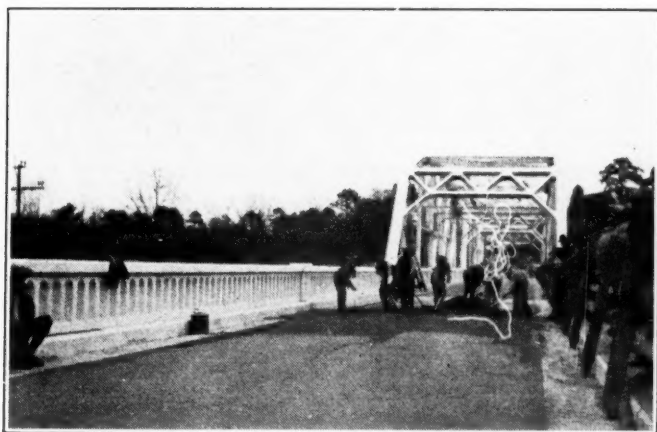
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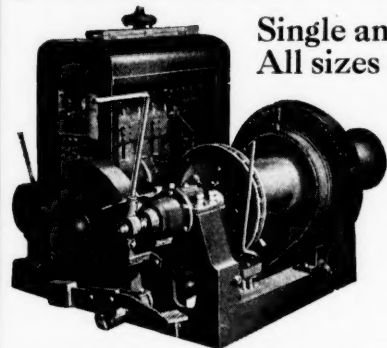
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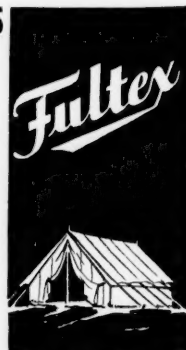


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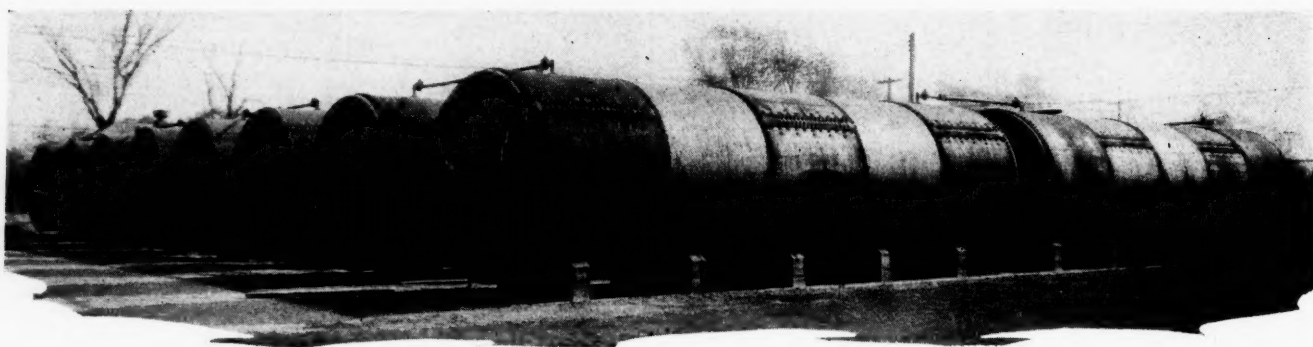
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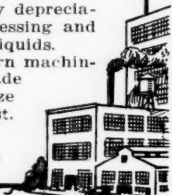


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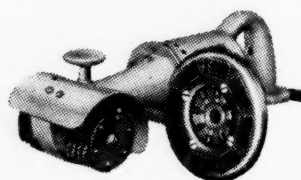
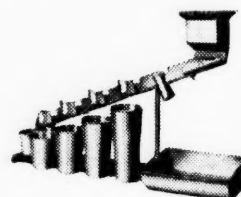
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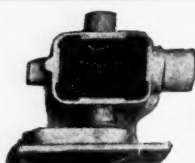
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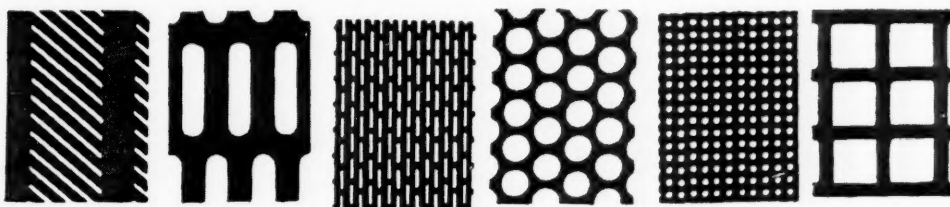
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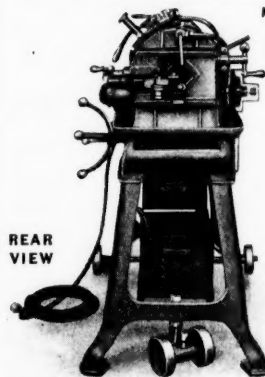
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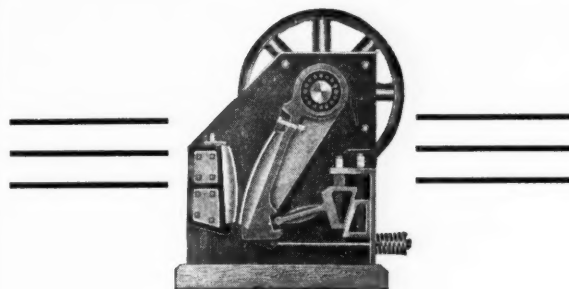
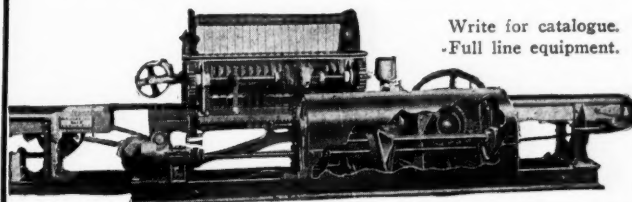
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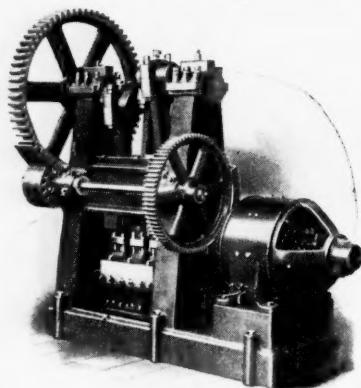
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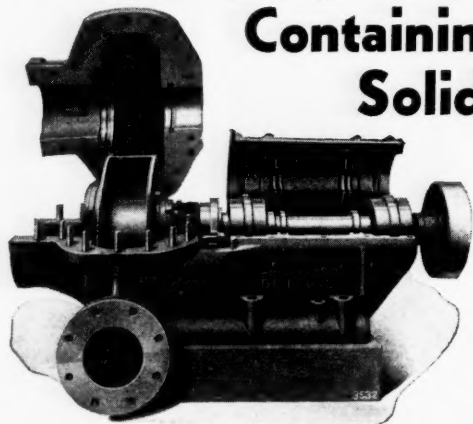
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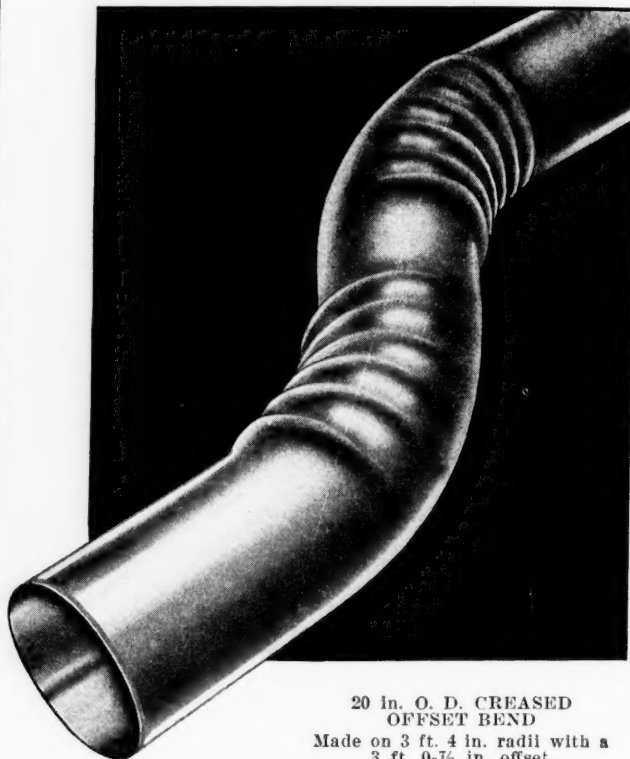
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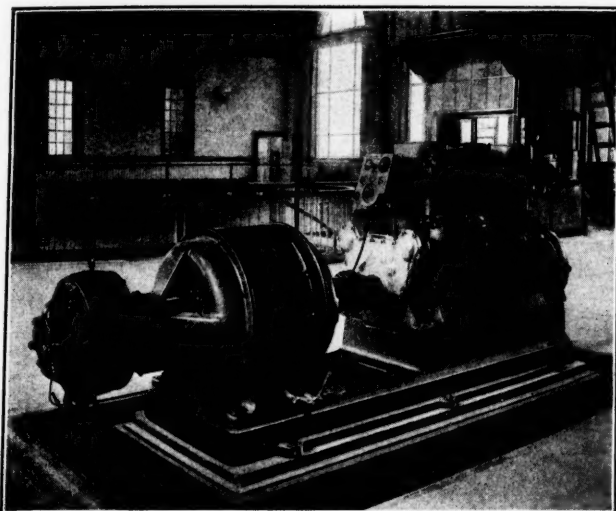
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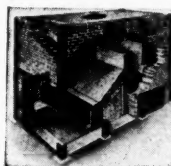
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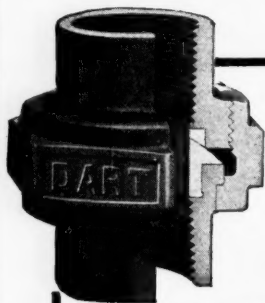
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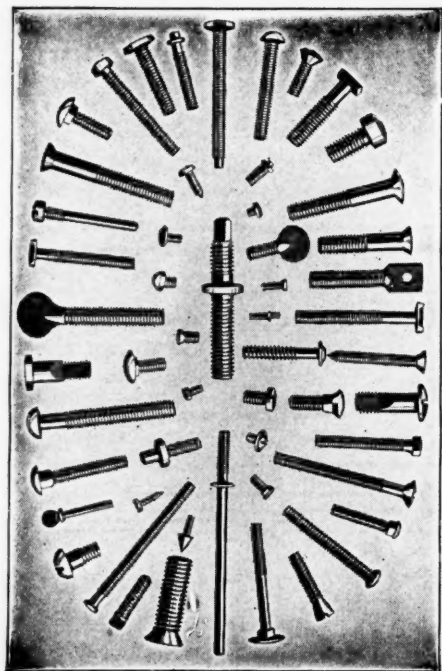
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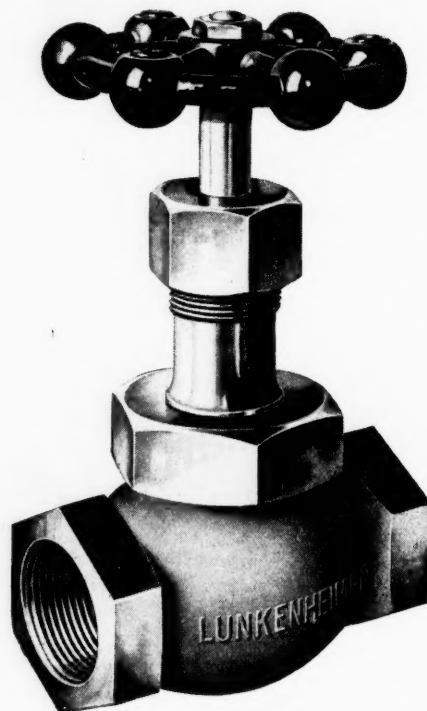


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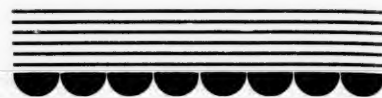
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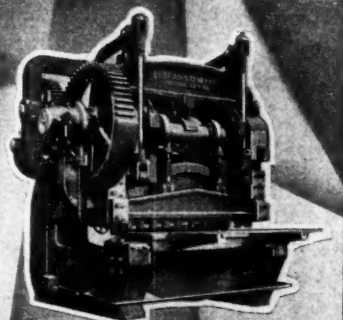
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Hydrogenation Process in Oil Refining

Although hydrogenated products have been produced by the Standard Oil Company of New Jersey in experimental plants at Bayway, N. J., and Baton Rouge, La., since 1927, definite predictions regarding commercial possibilities of the process were not given publicly, as it was felt that a thorough trial on an extensive commercial scale should be made before these possibilities were made public. The plants at Bayway and Baton Rouge have now completed two years' of commercial operation, and in this period are declared to have shown the effects of hydrogenation more far-reaching than was at first realized. The company has no doubt now as to what the process will do and announces that its organization and domestic marketing affiliations are ready to produce and put on the market a line of products made by this process.

The most important product of the hydrogenated line, from the standpoint of the public, is a new motor oil to be sold under the brand name of Essolube. Also a line of hydrogenated solvents for use in the paint, varnish, lacquer, soap, rubber, artificial leather and textile industries has been developed and will soon be on the market. These solvents are said to be highly efficient, of superior quality and are expected to find a market in a number of special uses where a combination of high solvent power and controlled evaporation rate is essential.

Either of the two plants in the United States, it is said, could be converted to the manufacture of ammonia, nitric acid and explosives in time of emergency, while the production of high-grade kerosene and benzol substitute for anti-knock blending purposes has already been discussed. Further extension of the list of products which might be made by hydrogenation depends not on the limitations of the process, it is declared, so much as on the market demand.

With a quarter of a century of research behind it, and experiments still continuing, more investigation has been carried on in the development of hydrogenation than on any other process the petroleum industry has known. The Bayway and Baton Rouge plants each use around 5,000,000 cubic feet of gas daily, and have run continuously night and day for about a year without interruption for any cause. Walls 7 inches thick, made of alloy steel specially constructed in the gun shops of the Midvale Steel Company form the reaction chambers which must withstand pressures up to 3600 pounds, temperatures from 750 to 1000 degrees, and the action of the catalyst. The catalyst, incidentally, may be used over again.

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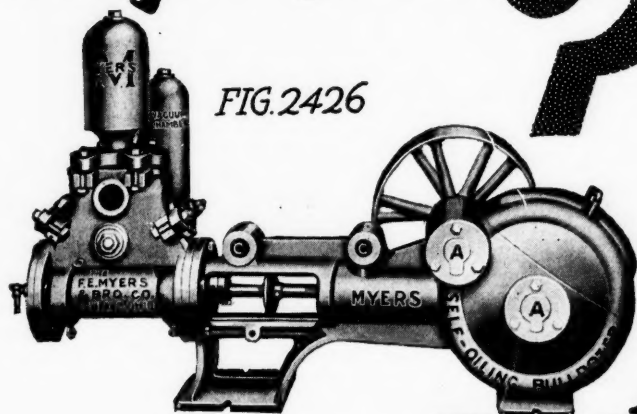


FIG. 2426



FIG. 2455

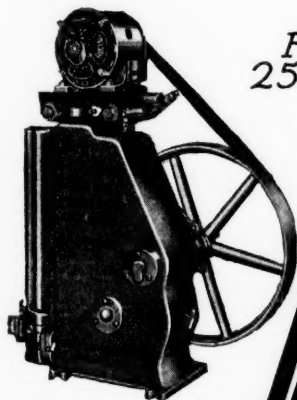


FIG. 2527

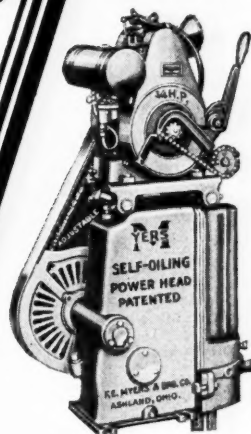


FIG. 2551

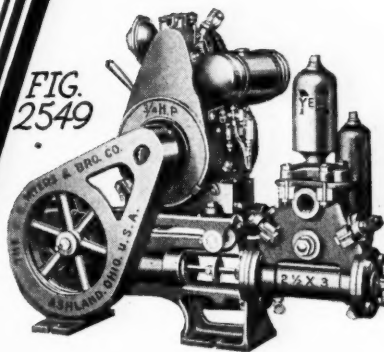


FIG. 2549

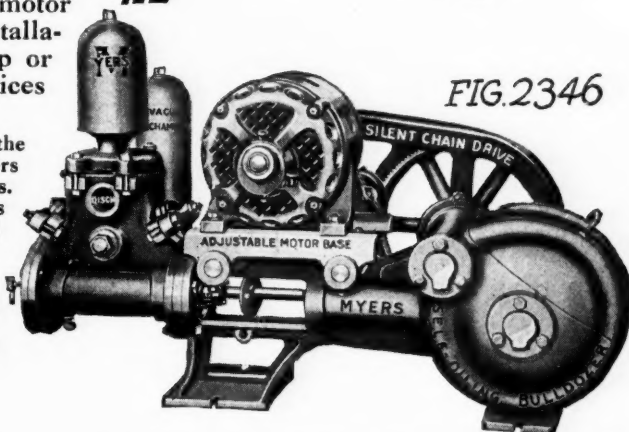


FIG. 2346

Water consumption throughout the year reaches its highest peak during the summer months. In the home, on the farm, factory, or elsewhere, this is true.

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